Pirkey - Twc Haz Waste

Southwestern Electric Power Company
P. O. BOX 21106 - SHREVEPORT, LOUISIANA 71156

November 25, 1987

Mr. Bob Lee
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, TX 78711

Re: Closure
Metal Cleaning Waste Pond
H. W. Pirkey Power Plant
SWR #33240

Dear Mr. Lee:

On October 30, 1987, Southwestern Electric Power Company submitted to Mr. David Buchanan, formally of your agency, a closure plan for the metal cleaning waste pond at our H. W. Pirkey Power Plant. This closure plan involved removal of sludges and silts from the pond, and installation of a three foot compacted clay liner.

Following verbal approval from Mr. Buchanan on November 2, 1987, the work of removing accumulated silt and sludges from the pond began. This work was completed on November 5 and at that time representatives of the TWC District V Office requested that we collect samples from the in-situ clay in the bottom of the pond before the additional three feet of clay liner was installed. Samples were collected from locations in the pond, as indicated on Attachment A, and analyzed in the field for pH by SWEPCO personnel and separately by TWC personnel. The results of those SWEPCO pH determinations are included in Attachment B. At that time TWC personnel advised that they plan to use our pH data since their pH meter seemed to have been responding slowly.

In a telephone conversation of November 6, 1987 with Mr. Buchanan, he advised that the District V TWC staff was concerned about the soil pH results obtained from the bottom of the pond, since they were around 4.0 pH units. I explained that we believed that this was due to naturally occurring constituents of the native clay soils. He agreed that this was a possibility but that TWC would like for us to present some form of technical documentation of the cause of the low pH's. We agreed that, if we could provide documentation of similar low pH values for similar soils around the plant site and could present geologic

cross-sections to show a direct correlation between these other soils as being in the same geologic unit, then this would be acceptable. In addition, Mr. Buchanan indicated that we could make a demonstration that the low pH's in the metal cleaning waste pond soils are not due to the hydrochloric acid that was in the pond at one time by showing that chloride levels in the pond soil samples are similar to chloride levels in other soils with similar pH's in the area that were not affected by the waste in the pond.

Initially, we attempted to retrieve core samples taken from around the plant site prior to plant construction. These core samples had been in storage since their collection. However, we were advised that these samples had all recently been discarded. Consequently, we used the logs of these borings to locate the clay soil unit existing in the bottom of the metal cleaning waste pond and at other locations in different directions surrounding the metal cleaning waste pond but some distance away. A map indicating the location of these core borings, which had geologic descriptions, is Attachment C. Attachment D is a set of copies of the boring logs used to locate the clay layer.

On November 18, core samples were obtained by Southwestern Laboratories at points near the original core borings indicated on Attachment C. A letter report dated November 23, 1987 from Southwestern Laboratories (Attachment E) confirms that these samples were taken from the same clay soil layer that was sampled on November 5 in the metal cleaning waste pond. Attachment F is a set of preliminary geologic cross-sections constructed from the geologic descriptions taken from the original core holes indicated on Attachment C. These cross-sections indicate that the clay layer existing in the bottom of the metal cleaning waste pond extends out in all directions from the pond. Samples of the clay layer taken from the cores (at depths indicated on Attachment F) were analyzed for pH, as well as chlorides, sulphates and electrical conductivity. The results are contained in Attachment G.

We believe that the data submitted today demonstrates the following:

- The in-situ clay existing in the bottom of the metal cleaning waste pond is part of a distinct geologic unit.

- The four core samples obtained on November 18 are from this same clay unit.

- The pH's of the November 18 clay unit samples are virtually the same as those obtained from the bottom of the metal cleaning waste pond on November 5.

- The chloride levels in the bottom of the metal cleaning waste pond are comparable to those obtained in the rest of the clay unit, indicating that hydrochloric acid residue is not present in the bottom of the metal cleaning waste pond.

- Sulfate levels in the bottom of the metal cleaning waste pond are at least as high as those in the rest of the geologic unit and in fact are somewhat higher, probably indicating the oxidation of pyritic material in the clay in the bottom of the pond upon exposure to air and water.

Based on this data, we believe that there is no hydrochloric acid residue in the bottom of the metal cleaning waste pond and that the "low" pH's presently existing in the bottom of the metal cleaning waste pond are naturally occurring pH's, as confirmed by analysis of similar, unaffected soils. We therefore respectfully request TWC's approval of closure of the metal cleaning waste pond, pending additional assessment of potential impacts on the groundwater, which is taking place at this time. It was our understanding from Mr. Buchanan that, once the pH of the clay in the metal cleaning waste pond was satisfactorily verified as being from natural conditions, this would constitute satisfactory closure of the pond itself. Lining of the metal cleaning waste pond would not be a part of the closure process and could then take place at our convenience.

As we do wish to proceed with lining of the metal cleaning waste pond on our own, we request an expeditious response to this request. If you require any additional information or have any questions with regard to the enclosed information, please do not hesitate to give me a call. We will continue to work with your agency towards formal closure of this pond, including assessment of groundwater impacts, if any.

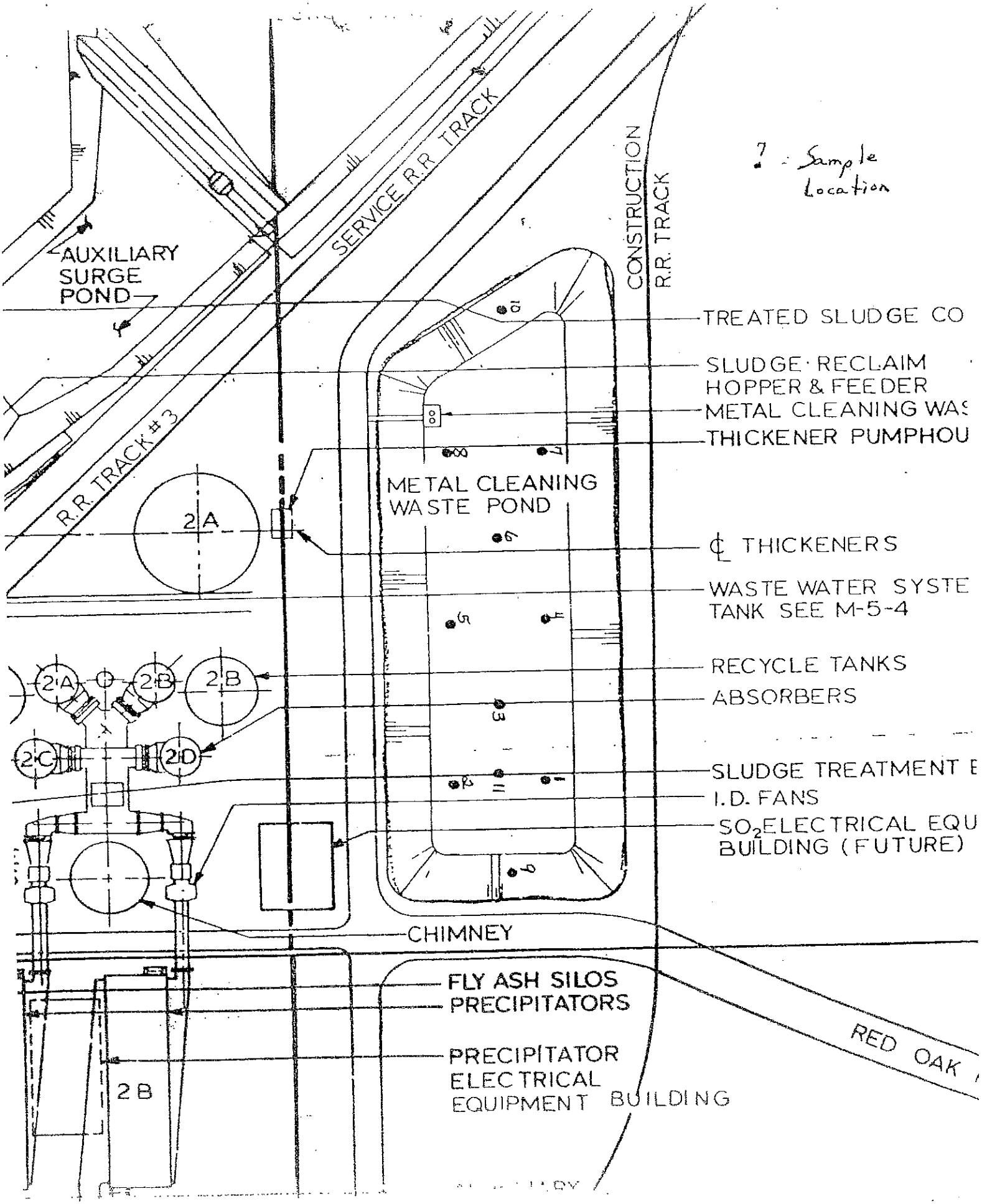
Sincerely,

Jay A. Pruett

Jay A. Pruett
Manager of Environmental Affairs

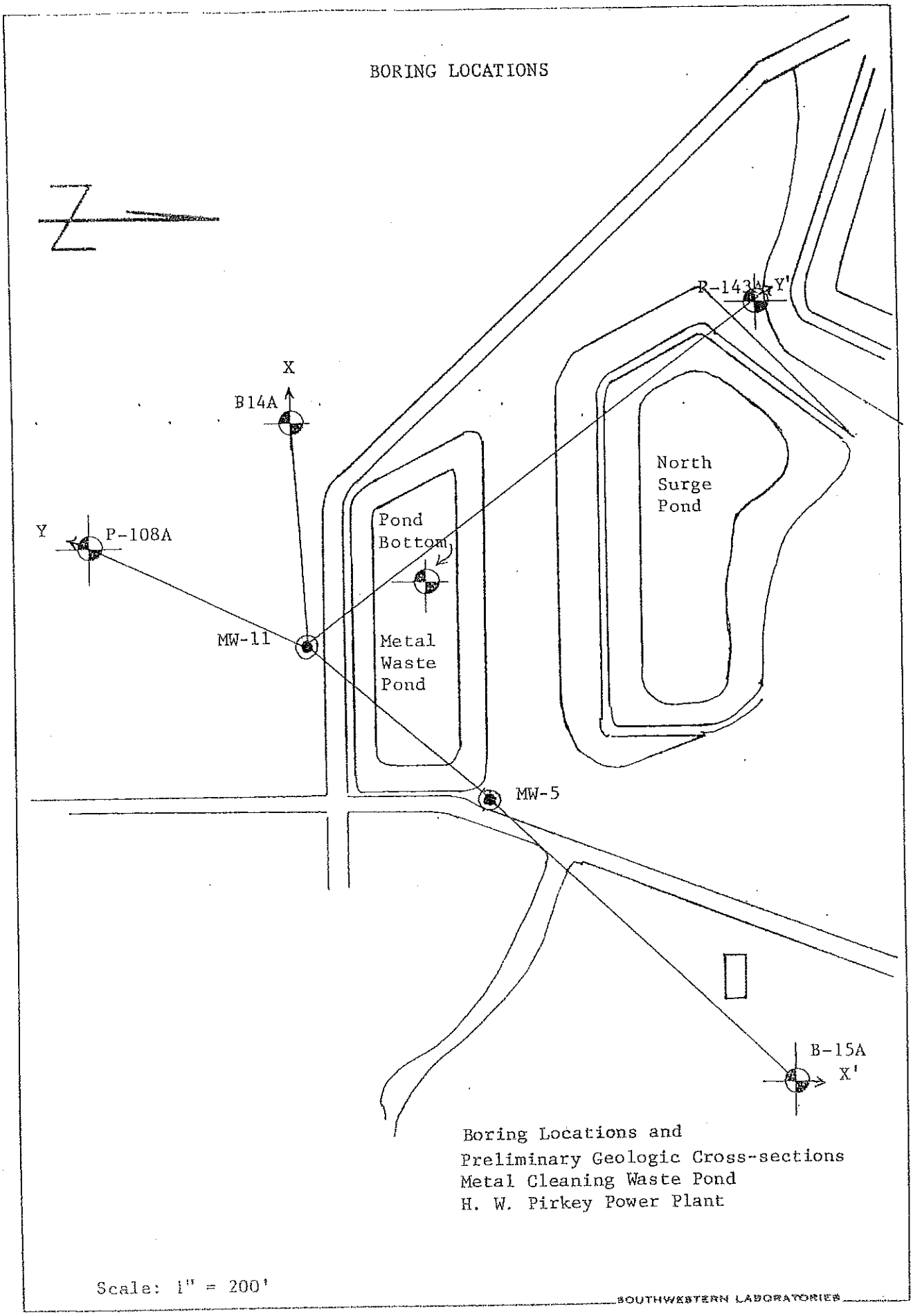
JAP/db
Enclosure
xc: Mr. L. E. Dillahunty, w/o
Mr. R. T. Whetstone, w
Mr. E. M. Williams, w
Mr. A. I. Melson, w
File, w

ATTACHMENT A



SOUTHWESTERN ELECTRIC POWER COMPANY
ENVIRONMENTAL LABORATORY
PIRKEY METAL CLEANING
POND SOILS

LAB. NO.		SAMPLE	pH (lab)	pH (field)	SO4 meq/L	Cl meq/L	E.C. Mmhos
1172192	1		3.9	4.2	3.33	0.7	0.5
1172193	2		4.5	4.8	9.49	1.1	0.9
1172194	3		3.9	4.1	5.36	0.7	0.5
1172195	4		3.7	3.7	4.74	1.4	0.6
1172196	5		3.9	3.7	4.04	0.8	0.5
1172197	6		4.3	4.0	3.93	0.2	0.5
1172198	7		6.0	6.6	23.77	0.8	2.1
1172199	8		6.2	4.6	9.08	2.5	1.5
1172200	9	slope east	3.7	3.8	1.68	<0.1	0.2
1172201	10	slope west	4.3	4.3	1.07	1.6	0.3
1172202	11		3.5	3.6	1.00	2.4	0.3



Boring Locations and
Preliminary Geologic Cross-sections
Metal Cleaning Waste Pond
H. W. Pirkey Power Plant

JOB NO. SH-5555-00 BORING NO. 14 DATE: 11/29/78

TYPE BORING: Tnt Sample SURFACE ELEV. 357.27 LOCATION: See Plan of Boring

SILTS & SANDS		COHESIVE SOILS – CLAYS				COLORS		MATERIALS	SAND ADJ.	CHARACTERISTICS
CONDITION		CONSISTENCY		PENETROMETER	N – VALUE					
LO.. Loose	<10	VSo.. Very Soft		0 – 0.5	<2	Lt.. Light	Br.. Brown	Cl.. Clay, Clayey	F.. Fine	Calc. Calcareous
MDe.. Med. Dense	10–30	So.. Soft		0.5 – 1.0	2 – 4	Dk.. Dark	Bk.. Black	Si.. Silt, Silty	M.. Medium	Lig. Lignite
De.. Dense	30–50	Fm.. Firm		1.0 – 1.5	4 – 8	G.. Gray	Bl.. Blue	Sa.. Sand, Sandy	Co.. Coarse	Org. Organic
VDe.. Very Dense	>50	St.. Stiff		1.5 – 3.0	8 – 15	T.. Tan	Gr.. Green	Ls.. Limestone	Si.. Silty	Lam. Laminated
		VSt.. Very Stiff		3.0 – 4.5	15 – 30	R.. Red	Y.. Yellow	Gv.. Gravel		Sls. Slickensided
		H.. Hard		4.5+	>30	Rdish Reddish	Wh.. White	Sls.. Siltstone		Sl.. Slightly
								SS.. Sandstone		Sm(s).Seam(s)
								Sh.. Shale, Shaley		Nod. Nodules

TEST ASSIGNMENT	SAMPLE NO.	DEPTH, FT.	SAMPLES	STRATUM DESCRIPTION: CONDITION OR CONSISTENCY	COLOR	MINOR MATERIALS OR ADJECTIVES	PREDOMINATE MATERIAL	CHARACTERISTICS OR MODIFICATIONS	STANDARD PENETROMETER: SEAT 6"	1st 6"	2nd 6"	CLASSIFICATION, COMMENTS, OR REMARKS	HAND PENETROMETER
			X	(14") 1.0 Lo	Brown	Si f	Sa	w/ wood & plant remains	2	2	2		
	J-1A												
	J-1B			Lo 2.0	Tan	cl	Sa	w/ plant remains					
													4.5+
			X						6	10	13		
	J-2			VSt (14")	R.T. LtG	Sa	Cl.						
								sandstone from 5-6'					
		5											
				8.0					7	8	14		4.5
	J-3		X	(14") VSt	LtG, R.T.	Si	Cl	w/ traces of iron ore gravel					
				9.5									4.5
	T-4	10		(16") VSt	Lt Brownish gray	Si	Cl	w/ seams of iron ore gravel, red hematite stains and tan limonite stains					
									7	10	17		3.5
	J-5		X	(18")									
		15											
				16.5									
				MDe	G. T	slightly cl	Si f Sa		8	9	11		3.5
	J-6		X	(15")									
		20											
				22.0									3.0
				VSt	Dk Brown	Si	Cl	intermixed w/ lt gray f Sa near contact w/ stratum below	5	13	19		
	J-7A		X	(18") 24.0									
	J-7B												
		25		VDe	R & T	Si f	Sa	w/ traces of Lt. gray f Sa and iron ore gravel					
				26.5									
								@ contact w/ stratum above	30	37	50/4		
	J-8		X	(14")									
		30		VDe	Green glauconitic		f Sa	w/ dark brown si cl and dark gray si f sa					

WATER INFORMATION

Seepage at 8 feet

Bailed to ____ feet at ____

Water at 8 feet at 48 hrs

Water at ____ feet at ____

Cave in @ 25.5' after 48 hrs

SITE CONDITIONS

JOB NO. SH-5556-00 BORING NO. 14 continued DATE: 1/29/78

TYPE BORING: SURFACE ELEV. LOCATION:

SILTS & SANDS	COHESIVE SOILS — CLAYS:			COLORS	MATERIALS	SAND ADJ.	CHARACTERISTICS
CONDITION	CONSISTENCY	PENETROMETER	N — VALUE	[illegible]	[illegible]	F. . Fine	Calc. Calcareous
Lo. . Loose 0-10	V.So. . Very Soft	0 — 0.5	<2	Dk. . Dark	[illegible]	M. . Medium	Lig. Lignite
MDe. . Med Dense 10-30	So. . Soft	0.5 — 1.0	2 — 4	G. . Gray	[illegible]	Co. . Coarse	Org. Organic
De. . Dense 30-50	Fi. . Firm	1.0 — 1.5	4 — 8	Ta. . Tan	Gr. Gravel	Si. . Silty	Lam. Laminated
VDe. . Very Dense >50	St. . Stiff	1.5 — 3.0	8 — 15	R. . Red	SiS. Siltstone		Slk. Slickensided
	VSt. . Very Stiff	3.0 — 4.5	15 — 30	Br. Brown, Bl. Black, Bl. Blue, Gr. Green, Y. Yellow, Wh. White	Sh. . Shale, Shaley		Sf. Stratified, Sm. Seams, Nod. Nodules
	H. . Hard	4.5+	>30				

STRATUM DESCRIPTION

TEST ASSIGNMENT	SAMPLE NO.	DEPTH, FT	SAMPLER	CONDITION OR CONSISTENCY	COLOR	MINOR MATERIALS OR ADJECTIVES	PREDOMINATE MATERIAL	CHARACTERISTICS OR MODIFICATIONS	STANDARD PENETROMETER SEAT 6"	1st 6"	2nd 6"	CLASSIFICATION, COMMENTS, OR REMARKS	HAND PENETROMETER
				32.0									
				Hard DkBrown SiCl w/ green glauc...									
	J-9		X	(18")		Sif Sa inter mixed			17	23	47		
		35											
	J-10		X	(18")			— 1" seam of gravel	C 3Bw	26	25	37		
		40											
									16	22	32		
	J-11		X	(18")									4.5
	J-12	45		(6")									
									22	50			
	J-13		X	(10")	49.0								
		50											

WATER INFORMATION

Seepage at ______ feet

Bailed to ______ feet at ______

Water at ______ feet at ______

Water at ______ feet at ______

SITE CONDITIONS

Driller: ______

JOB NO. SH-5555-C9 BORING NO. 15 continued DATE [illegible]

TYPE BORING: SURFACE ELEV. LOCATION:

SILTS & SANDS	COHESIVE SOILS - CLAYS		COLORS	MATERIALS	SAND ADJ.	CHARACTERISTICS
CONDITION	CONSISTENCY / PENETROMETER	N - VALUE				
Lo. . Loose <10	VSo. . Very Soft / 0 - 0.5	<2	Lt. . Light / Br. . Brown	Cl. . Clay, Clayey	F. . Fine	Calc. Calcareous
MDe. . Med. Dense 10-30	So. . Soft / 0.5 - 1.0	2 - 4	Dk. . Dark / Bk. . Black	Si. . Silt, Silty	M. . Medium	Lig. Lignite
De. . Dense 30-50	Fm. . Firm / 1.0 - 1.5	4 - 8	G. . Gray / Bl. . Blue	Sa. . Sand, Sandy	C. . Coarse	Org. Organic
VDe. . Very Dense >50	St. . Stiff / 1.5 - 3.0	8 - 15	T. . Tan / Gr. . Green	Ls. . Limestone	Si. . Silty	Lam. Laminated
	VSt. . Very Stiff / 3.0 - 4.5	15 - 30	R. . Red / Y. . Yellow	Gr. . Gravel		Sls. Slickensided
	H. . Hard / 4.5+	>30	Rdsh. Reddish / Wh. White	Sls. Siltstone		Sl. Slightly
				SS. . Sandstone		Snd. Seams
				Sh. . Shale, Shaley		Nod. Nodules

STRATUM DESCRIPTION

TEST ASSIGNMENT	SAMPLE NO.	DEPTH, FT	SAMPLES	CONDITION OR CONSISTENCY	COLOR	MINOR MATERIALS OR ADJECTIVES	PREDOMINATE MATERIAL	CHARACTERISTICS OR MODIFICATIONS	STANDARD PENETROMETER SEAT-6"	1st-6"	2nd-6"	CLASSIFICATION, COMMENTS OR REMARKS	HAND PENETROMETER
							trace of [illegible] @ 93.5'						
	J-25		X	(1")									
					95.0'								
		95											
					[illegible]	[illegible]	Sa						
	J-26		X	(2") 98.5'					75/[illegible]				
		100											

WATER INFORMATION

Seepage at ______ feet

Bailed to ______ feet at ______

Water at ______ feet at ______

Water at ______ feet at ______

SITE CONDITIONS

Driller: ______

Logger: ______

GEOTECHNICAL ENGINEERS

JOB NO. 54-5555-00 BORING NO. [illegible] DATE: [illegible]

TYPE BORING: [illegible] SURFACE ELEV. [illegible] LOCATION: [illegible]

CONDITION		CONSISTENCY		PENETROMETER	N-VALUE
[illegible]	Loose 0-10	VSo.	Very Soft	0 – 0.5	<2
MD.	Med Dense 10-30	So.	Soft	0.5 – 1.0	2 – 4
De.	Dense 30-50	Fm.	Firm	1.0 – 1.5	4 – 8
VDe.	Very Dense >50	St.	Stiff	1.5 – 3.0	8 – 15
		VSt.	Very Stiff	3.0 – 4.5	15 – 30
		H.	Hard	4.5+	>30

STRATUM DESCRIPTION

ASSIGNMENT	SAMPLE NO.	DEPTH FT.	SAMPLES	CONDITION OR CONSISTENCY	COLOR	MINOR MATERIALS OR ADJECTIVES	PREDOMINATE MATERIAL	CHARACTERISTICS OR MODIFICATIONS	1st 6"	2nd 6"	3rd 6"	CLASSIFICATION, COMMENTS, OR REMARKS	HAND PENETROMETER
	J-1A		X	(15") Lo	Brown	Si f	Sa	w/ trace of gravel	1	1	4		
	J-1B			St				& plant remains					
	J-2			(12") 2.0	R&T	Sa	Cl						2.5
				Hard	LtG&T	Si	Cl	w/ trace of iron					
	J-3	5	X	(15½")				ore gravel and	7	8	10		4.25
				6.0				iron stained silt					
				VSt	Greenish Gray	Sa	Cl	w/ pockets of					
					& Tan			lt brown si cl					
				(18")					7	8	13		3.25
	J-4		X	9.5									
	J-5	10		(20") St	Lt Brown	Si	Cl						3.5
				12.0	& T								
				MDe	LtG&T	Cl	Sa	laminated w/					
	J-6		X	(18")				brown si cl	8	13	16	Drilling mud used from 15'	2.75
		15		16.0									
				Hard	Brown & Tan	Si	Cl	w/ few stained					
								seams of iron ore					
	J-7		X	(18")				gravel	8	14	18		3.25
	J-8	20		(18")		VSt	C 19.5'						4.25
	J-9		X						8	13	21		4.25
		25		26.0									
				De	G&T	Cl	Si	w/ trace of iron					
								ore gravel					
	J-10		X	(18")					15	21	27		
		30											

WATER INFORMATION

Seepage at ____ feet at ____

Bailed to ____ feet at ____

Water at ____ feet at ____

Water at ____ feet at ____

SITE CONDITIONS

[illegible]

Driller: ____

JOB NO. [illegible] BORING NO. [illegible] DATE: [illegible] 78

SURFACE ELEV [illegible] LOCATION: [illegible]

TYPE BORING: [illegible]

STRATUM DESCRIPTION

TEST ASSIGNMENT	SAMPLE NO.	DEPTH, FT	SAMPLES	CONDITION OR CONSISTENCY	COLOR	MINOR MATERIALS OR ADJECTIVES	PREDOMINATE MATERIAL	CHARACTERISTICS OR MODIFICATIONS	SEAT - 6"	1st - 6"	2nd - 6"	CLASSIFICATION, COMMENTS, OR REMARKS	HAND PENETROM.
					31.0								
	J-11		✓	VDe (17")	Green glauconitic	f sa		w/ dark brown si and dark gray si f sa	6	37	50		
		35			36.0								
	J-12		X	VDe (4.5")	LtG	f	Sa	w/ red hematite stains and [illegible] limonite stains	50/5	75	25/[illegible]		
		40			42.0								
	J-13		X	(18")	DkBr	Si	Cl	w/ green glauconitic si f sa and dark gray si f sa	9	13	20		2.25
	J-14	45		(24")				[illegible]					2.25
	J-15		X	(12")					17	27	42		2.5
		50			52.0								
	J-16		X	VDe (16")	Green glauconitic		si f sa	w/ inclusions of brown Cl, Si and traces of lignite	20	36	50/4.5	glauconitic sapolomite in J-16	2.[illegible]
		55											
	J-17		X	(5")					30	50/5			
		60											

WATER INFORMATION

Seepage at ______ feet

Bailed to ______ feet at ______

Water at ______ feet at ______

Water at ______ feet at ______

SITE CONDITIONS

Driller: ______

Logger: ______

JOB NO. SH-5555-00 BORING NO. [illegible] continued DATE [illegible]

TYPE BORING: [illegible] SURFACE ELEV. [illegible] LOCATION [illegible]

[illegible]	[illegible]	Colors	Materials	Sand Adj.	Characteristics
[illegible]	[illegible]	Lt. Light / Br. Brown	Cl. Clay, Clayey	F. Fine	Calc. Calcareous
[illegible]	[illegible]	Dk. Dark / Bk. Black	Si. Silt, Silty	M. Medium	Lig. Lignite
[illegible]	[illegible]	Gr. Gray / Bl. Blue	Sa. Sand, Sandy	Co. Coarse	Org. Organic
[illegible]	[illegible]	Tan / Grn. Green	Gravel	Si. Silty	Lam. Laminated
[illegible]	[illegible]	Red / Yel. Yellow	SS. Siltstone		Slk. Slickensided
[illegible]	[illegible]	Reddish / Wh. White	SS. Sandstone		Sli. Slightly
			Sh. Shale, Shaley		Sm. Seam(s)
					Nod. Nodules

Test Assignment	Sample No.	Depth, ft.	Samples	Condition or Consistency	Color	Minor Materials or Adjectives	Predominate Material	Characteristics or Modifications	Standard Penetrometer: Seat 6"	1st 6"	2nd 6"	Classification, Comments, or Remarks	Hand Penetrometer
				61.0									
				Hd	Dk Brown	Si	Cl	with inclusions					
								of lt gray f sa					
	J-18		X	(12")				and green si	39	50			4.5+
								f sa w/ lam					
		65						w/ thin laminae					
								of lt gray si f sa					
								and trace of					
	J-19		X	(8")				organic matter	42	50			4.5
	T-20	70		(8")									4.5
	J-21		X	(11½)					40	50/5.5			4.25
				75.0									
		75		VDe	Greenish gray	Si	f sa	interbedded w/					
								brown cl si					
	J-22		X	(3")					50/3	75			2.0
		80											
	J-23		X	(4½")					50/5				
		85											
				88.0									
	J-24		X	(2") VDe	Greenish gray	Si	f sa	w/ [illegible]	75/3	25			
								brown cl si					
		90											

WATER INFORMATION

Seepage at ______ feet

Boring dry ______ feet of

Water at ______ feet of

Water at ______ feet of

SITE CONDITIONS

Driller: ______

Helper: ______

LOG OF BORING NO. P-108

HENRY W. PIRKEY POWER PLANT NO. 1
HALLSVILLE, TEXAS
PURCHASE ORDER NO. H-07813

TYPE BORING: Undisturbed Sample LOCATION: N780,98-1; H07,813

DEPTH FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	ATTEMPTED SAMPLE (INCHES)	RECOVERED SAMPLE (INCHES)	R.Q.D.	SHEAR STRENGTH IN TONS/SQ FT. (0.5 / 1.0 / 1.5)	UNIT DRY WT. LBS./CU. FT.
			ELEVATION:						
			Reddish-tan sandy clay (CL)						
5			Gray clay, w/numerous iron stone pockets and layers and iron stains (CH)		18	14			
10			Very stiff gray and tan clay, w/numerous iron stains and occasional sandy clay pockets		18	18			
15			-very stiff	18					
20			-tan, w/occasional iron laminations	24					
25			-w/large seams of iron stone fragments (CH)	44					
30			Medium dense brownish-gray clayey fine sand, w/numerous iron stone fragments and layers	20					
35			-very dense, w/numerous clay pockets	62					

DRILLER: Chapman
START DATE: 9/27/78 (Continued) GEOLOGIST: Kaetzel

NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS.

PLATE

LOG OF BORING NO. P-108 (Cont'd.)

HENRY W. PIRKEY POWER PLANT NO. 1
HALLSVILLE, TEXAS
PURCHASE ORDER NO. H-07813

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	ATTEMPTED SAMPLE (INCHES)	RECOVERED SAMPLE (INCHES)	R.Q.D.	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU. FT.
			(SC)						
			Very dense gray silty fine sand	44/3"					
40			(SM)						
			Very dense dark gray silty fine sand, slightly clayey	80/10"					
45									
			-dark brown	80/9.5"					
50									
				72/6.25"					
55			(SM)						
			Hard dark brown clayey fine sand						
			(SC)	60/5.5"					
60									
65									
70									

COMPLETION DEPTH: 59.5'
DATE: 9/27/78

DEPTH TO WATER: 28.75' - Caved at 28.75
DATE: 9/28/78

NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS.

PLATE

LOG OF BORING NO. P-145
HENRY W. PIRKEY POWER PLANT NO. 1
HALLSVILLE, TEXAS
PURCHASE ORDER NO. H-07813

TYPE BORING: Undisturbed Sample LOCATION: N303,700; E2,929,050

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION / ELEVATION:	BLOWS PER FT.	ATTEMPTED SAMPLE (INCHES)	RECOVERED SAMPLE (INCHES)	R.Q.D.	SHEAR STRENGTH IN TONS/SQ FT. (0.5 1.0 1.5)	UNIT DRY WT. LBS./CU. FT.
			Hard red and yellowish-brown sandy clay, w/occasional iron nodules		18	8.5			
			-w/numerous iron nodules (CL)		18	12			
5			Hard light gray and red clay, w/numerous iron nodules		30	12			
					30	15			
10			-tan and light gray -w/numerous iron nodules and stains (CH)		36	18			
			Dense light gray and yellowish-brown silty fine sand, w/numerous iron stains and nodules and occasional red and light gray clay seams	32	18	18			
15									
20			-very dense yellowish-brown	62					
25			(SM)	78					
30			Very dense gray silty fine sand, w/numerous dark brown clay pockets (SM)	93					
35			Very dense dark gray clayey fine sand, w/numerous dark brown clay laminations	59					

START: 11/10/78 DRILLER: Bishop

(Continued) GEOLOGIST: Thomas

NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS.

PLATE

LOG OF BORING NO. P-143 (Cont'd.)

HENRY W. PIRKEY POWER PLANT NO. 1
HALLSVILLE, TEXAS
PURCHASE ORDER NO. H-07813

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	ATTEMPTED SAMPLE (INCHES)	RECOVERED SAMPLE (INCHES)	R.Q.D.	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU. FT.
			(SC)						
40			Very dense gray silty fine sand, w/occasional small sandy clay pockets (SM)	83					
45									
50									
55									
60									
65									
70									

COMPLETION DEPTH: 40.0'
DATE: 11/10/78

DEPTH TO WATER: 18.5'
DATE: 11/13/78

PLATE

Pirkey - TWC Haz waste

Southwestern Electric Power Company
P. O. BOX 21106 - SHREVEPORT, LOUISIANA 71156

November 17, 1987

Mr. Bob Lee
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, TX 78711

Re: Groundwater Monitoring Program
Metal Cleaning Waste Pond
H. W. Pirkey Power Plant

Dear Mr. Lee:

We have recently been working with David Buchanan with regard to closure of the metal cleaning waste pond at our H. W. Pirkey Power Plant. Since David has left the TWC, he advised we should continue our coordination efforts through you, until a replacement was designated for him.

As we discussed with David last week, we are today submitting two copies of a report entitled "Preliminary Groundwater Assessment, Metal Cleaning Pond, and Recommendations for Additional Work" as prepared by Espey, Huston & Associates and dated November, 1987. This report contains a proposal and rationale for the installation of new monitoring wells which will provide a basis for assessing groundwater conditions associated with the metal cleaning waste pond at this facility.

We are anxious to complete closure of this pond, including resolution of the question as to whether there has been any groundwater impact. We fully intend to cooperate with your agency towards this end. Upon approval from your agency of this proposal, we will install the additional wells according to TWC guidelines and commence monitoring to assess the impact on groundwater, if any, of the metal cleaning waste pond. If you have any questions with regard to the proposal or if you wish to discuss its content, please do not hesitate to give me a call at (318)221-2604.

Sincerely,

Jay A. Pruett

Jay A. Pruett
Manager of Environmental Affairs

JAP/db
Enclosure

ESPEY,
HUSTON &
ASSOCIATES, INC.
Engineering & Environmental Consultants

Document No. 870966
EH&A Job No. 10824

PRELIMINARY GROUND-WATER ASSESSMENT OF METAL CLEANING POND AND RECOMMENDATIONS FOR ADDITIONAL WORK

Prepared for:

Southwestern Electric Power Co.
P.O. Box 21106
Shreveport, Louisiana 71156

Prepared by:

Espey, Huston & Associates, Inc.
P.O. Box 519
Austin, Texas 78767

November 1987

ESPEY,
HUSTON &
ASSOCIATES, INC.
Engineering & Environmental Consultants

11 November 1987

Mr. Jay A. Pruett
Manager of Environmental Affairs
Southwestern Electric Power Company
Shreveport, Louisiana 71156

EH&A Job No. 10824

Re: Preliminary Ground-water Assessment of Metal Cleaning Pond and Recommendations for Additional Work

Dear Mr. Pruett:

Espey, Huston & Associates, Inc. is pleased to submit this report for the referenced study. Contained herein is a preliminary assessment of the ground-water conditions relative to the metal cleaning pond, and our recommendations for additional work to further assess ground-water conditions.

If you have any questions concerning this report, please feel free to call me at (512) 327-6840 at your convenience.

Sincerely,

Tom R. Partridge

Tom R. Partridge, P.E.
Senior Staff Geological Engineer

TRP/lp

Enclosure

916 Capital of Texas Highway South • P.O. Box 519 • Austin, Texas 78767 • (512) 327-6840 • Telex 1561212

TABLE OF CONTENTS

LIST OF FIGURES

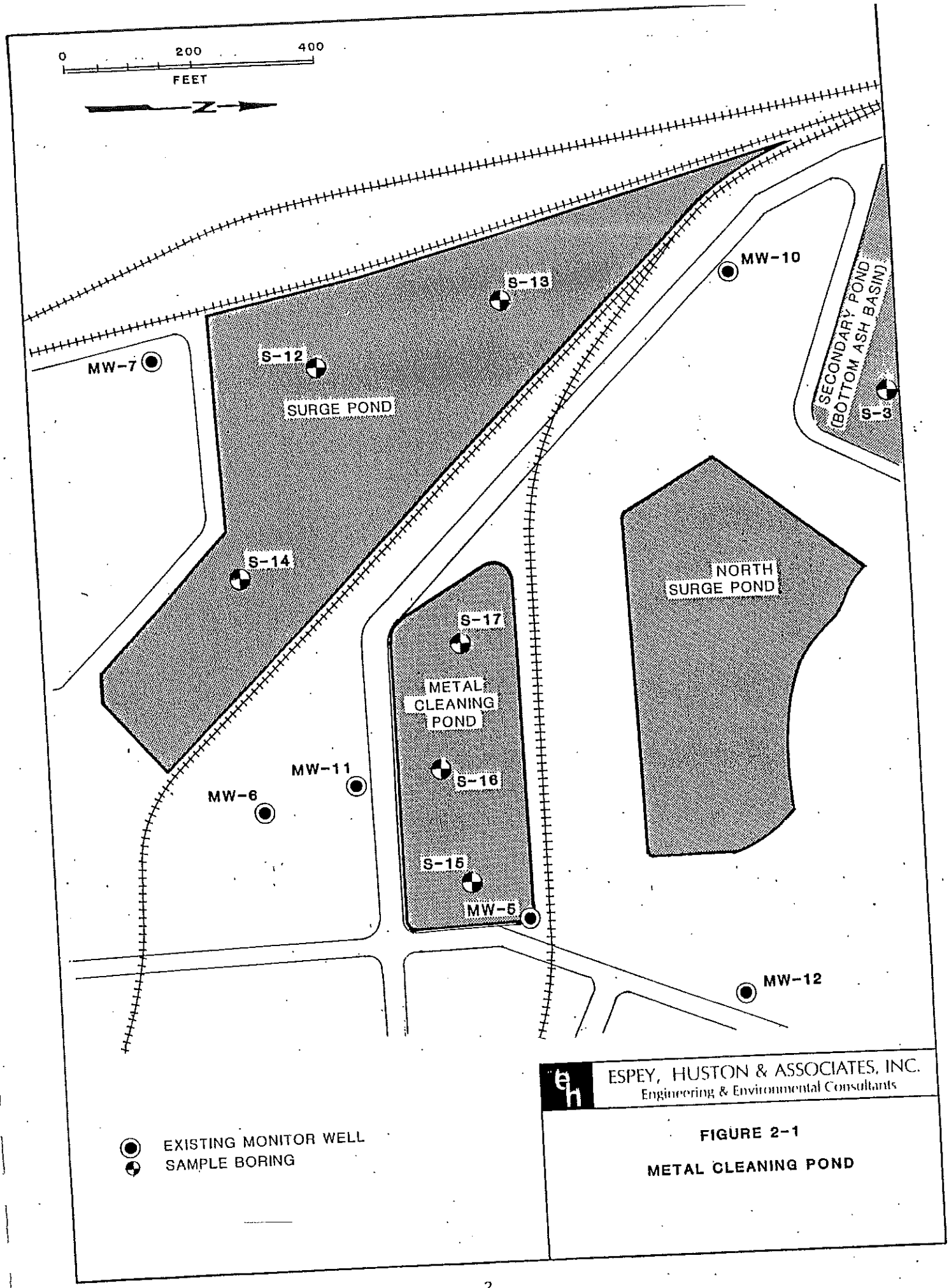
1.0 INTRODUCTION

Espey, Huston & Associates, Inc. (EH&A) is pleased to submit this preliminary ground-water assessment of the metal cleaning pond at the H. W. Pirkey Power Plant of Southwestern Electric Power Company (SWEPCO). This preliminary assessment is based upon data provided by SWEPCO, and was performed to provide a basis for assessing ground-water conditions associated with the metal cleaning pond.

2.0 METAL CLEANING POND

Power plant operation includes the periodic washdown of fuel boilers with a solution of hydrochloric acid. Boiler washdown water is normally discharged following treatment to neutralize acidity to the metal cleaning pond (Figure 2-1) which is a clay-lined, earthen impoundment. Failure to neutralize boiler washdown on one occasion in February, 1985 resulted in the pond contents having a pH of approximately one unit.

Ground-water quality monitoring conducted subsequent to the incident indicated that pH of samples from monitor well MW-7 had decreased from about 5.5 to about 3.5. Well MW-7 is located about 570 feet from the metal cleaning pond and is not the closest monitor well to the pond. The question has been raised as to whether or not the un-neutralized acid has caused degradation of the pond liner and resulted in adverse effects at MW-7. At present, TWC is requesting SWEPCO to conduct a ground-water assessment relative to the potential occurrence of pond leakage. Also, SWEPCO is in the process of closing the pond. It is EH&A's understanding that pH is the water quality parameter of concern to TWC.



ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants

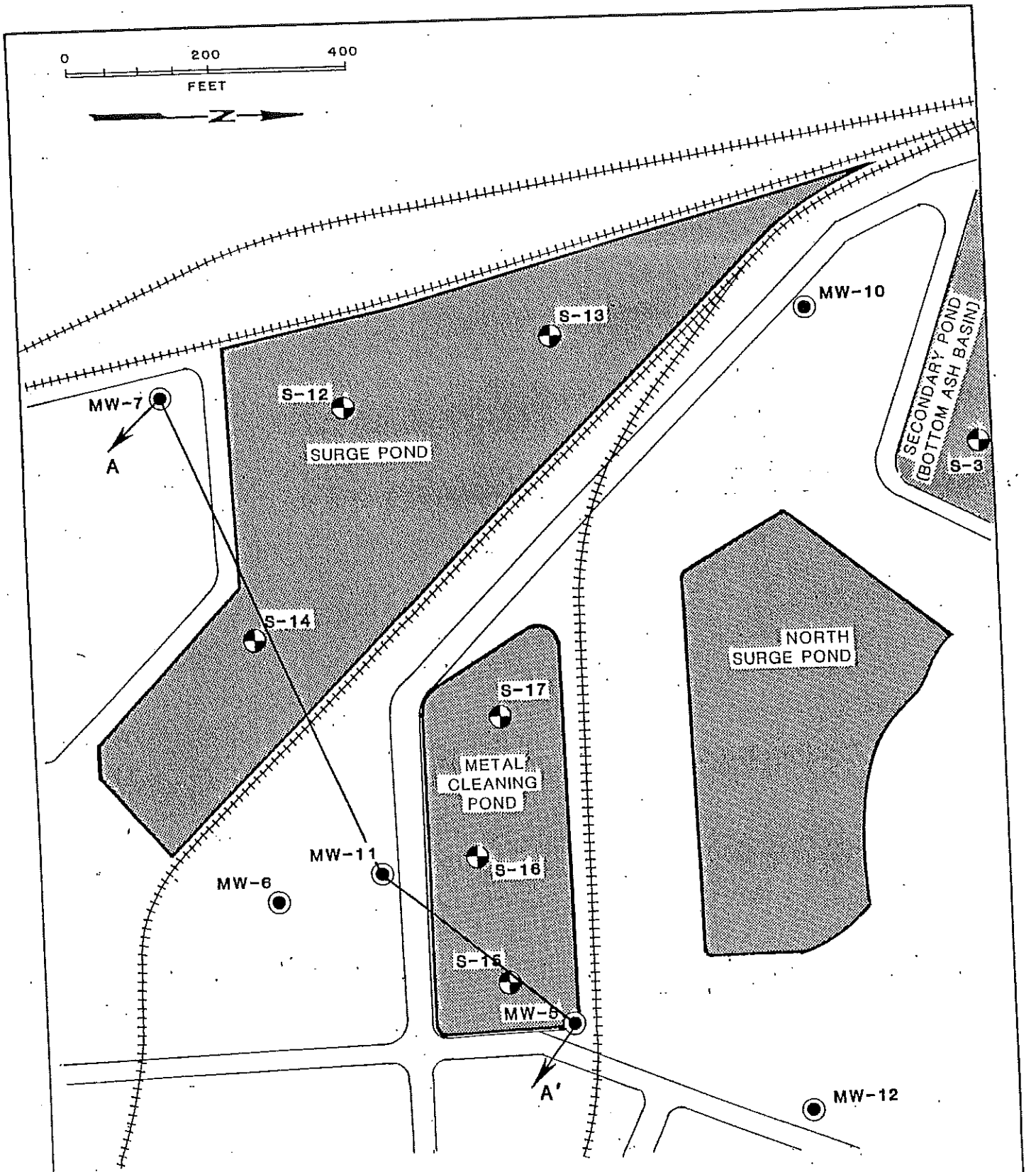
FIGURE 2-1

METAL CLEANING POND

3.0 SITE HYDROGEOLOGY

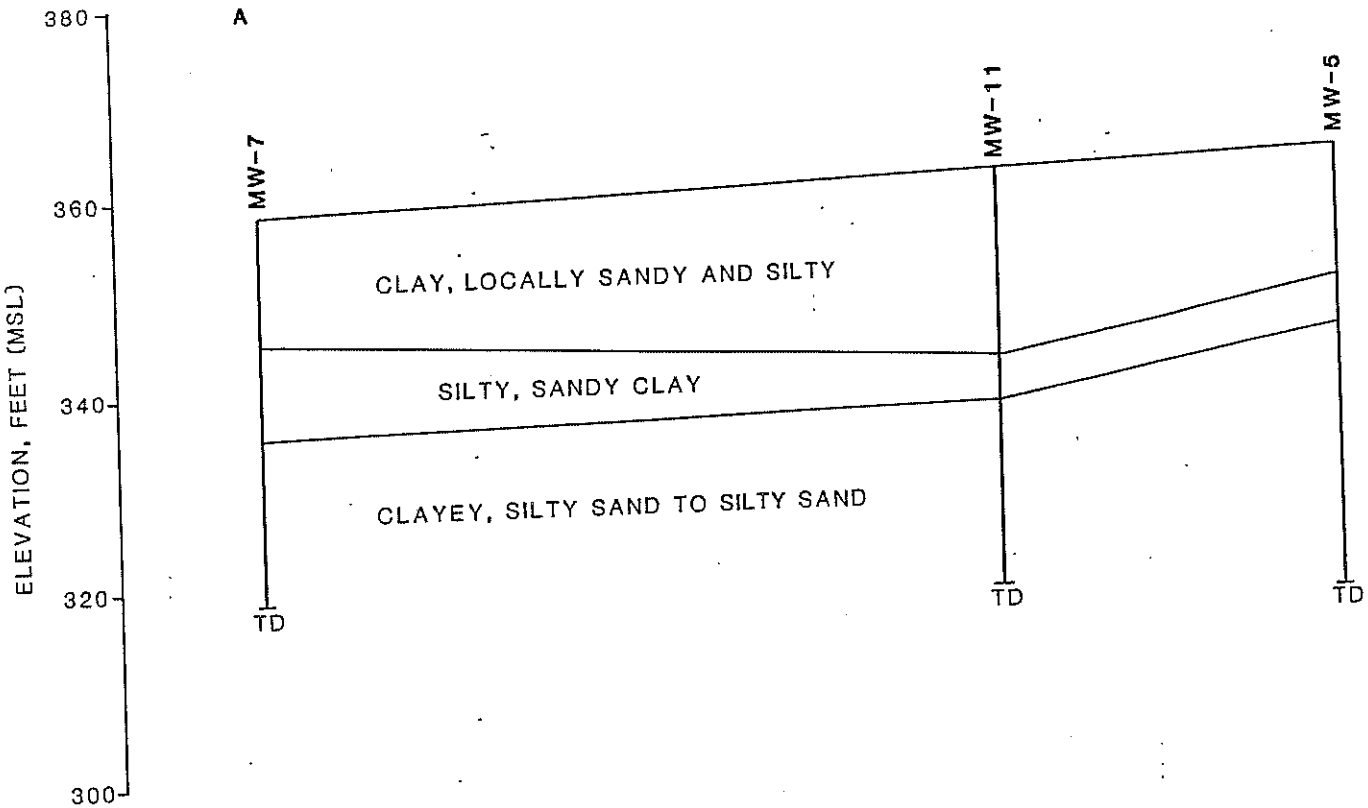
Site specific information provided by SWEPCO for this assessment includes lithologic data from soil borings and ground-water level data from monitoring wells installed around the pond. To assess the subsurface stratigraphy beneath the pond, the soil-boring data provided was used to construct a generalized hydrogeologic cross-section through the pond area. The location of the cross-section is shown on Figure 3-1. The cross-section is presented on Figure 3-2. The cross-section indicates that the pond is underlain by three correlatable geologic units. This upper unit is a stiff brown to gray clay 13-19 feet thick. This clay is locally sandy and silty. This upper unit is underlain by 5-10 feet of silty to sandy clay. This unit is in turn underlain by a unit consisting of clayey, silty sand to silty sand. The monitoring wells installed by SWEPCO are completed in this unit.

Ground-water elevation data provided by SWEPCO were used to construct a ground-water potentiometric map (Figure 3-3) in the pond vicinity. Also attached are historical plots of ground-water elevations for on-site wells. Ground-water flow is generally radial from the pond with one component of flow being toward MW-7 in which the depressed pH values have been detected. Depressed pH values have not been observed in any other wells in the pond vicinity. The hydraulic gradient toward MW-7 is about 0.007 ft/ft.



ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants

FIGURE 3-1
HYDROGEOLOGIC CROSS-SECTION
A-A' LOCATION

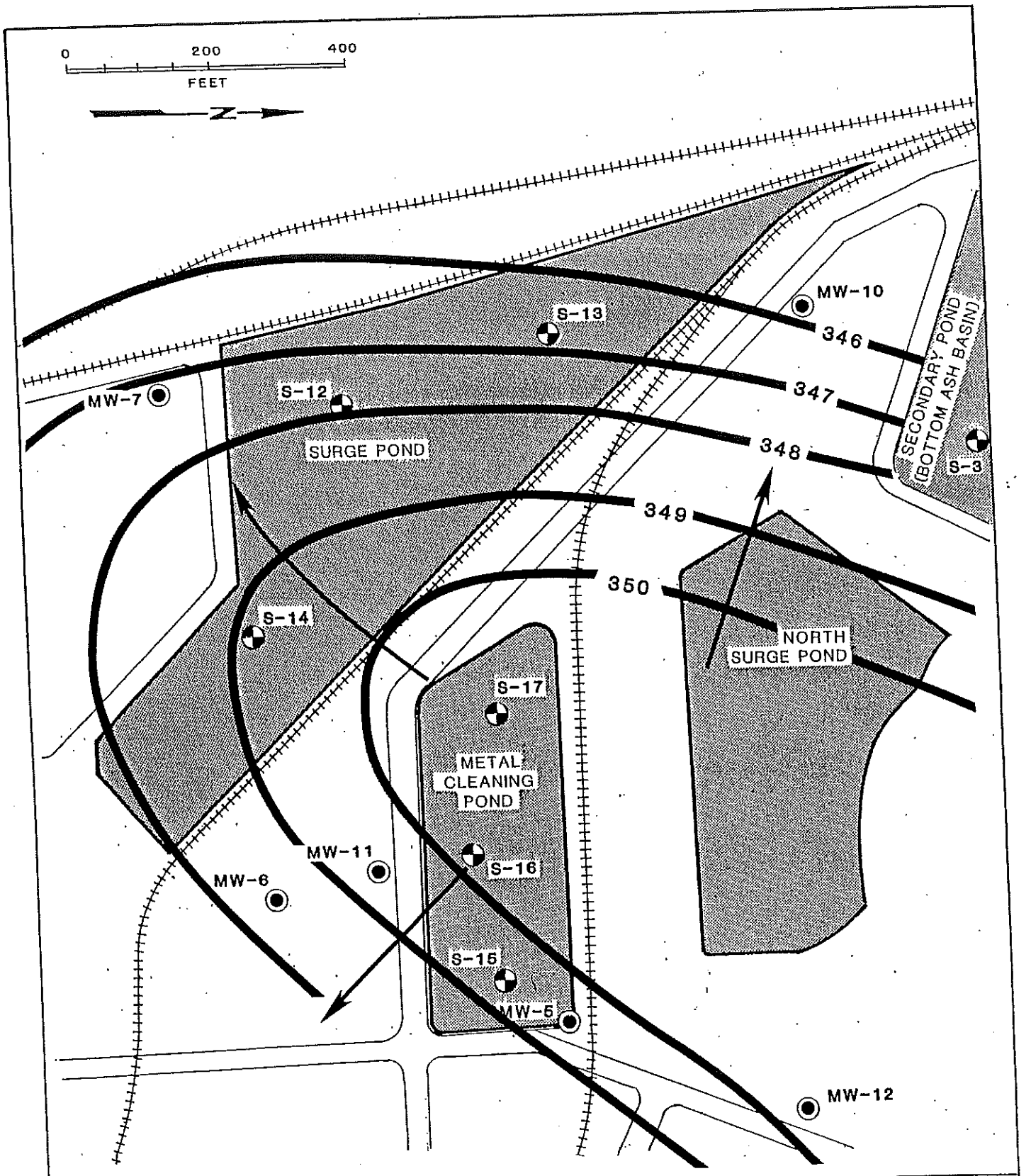


0 100 200 400 FEET

ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants

FIGURE 3-2

HYDROGEOLOGIC CROSS-SECTION A-A'



DIRECTION OF GROUND-WATER FLOW

-350- GROUND-WATER ELEVATION

EXISTING MONITOR WELL

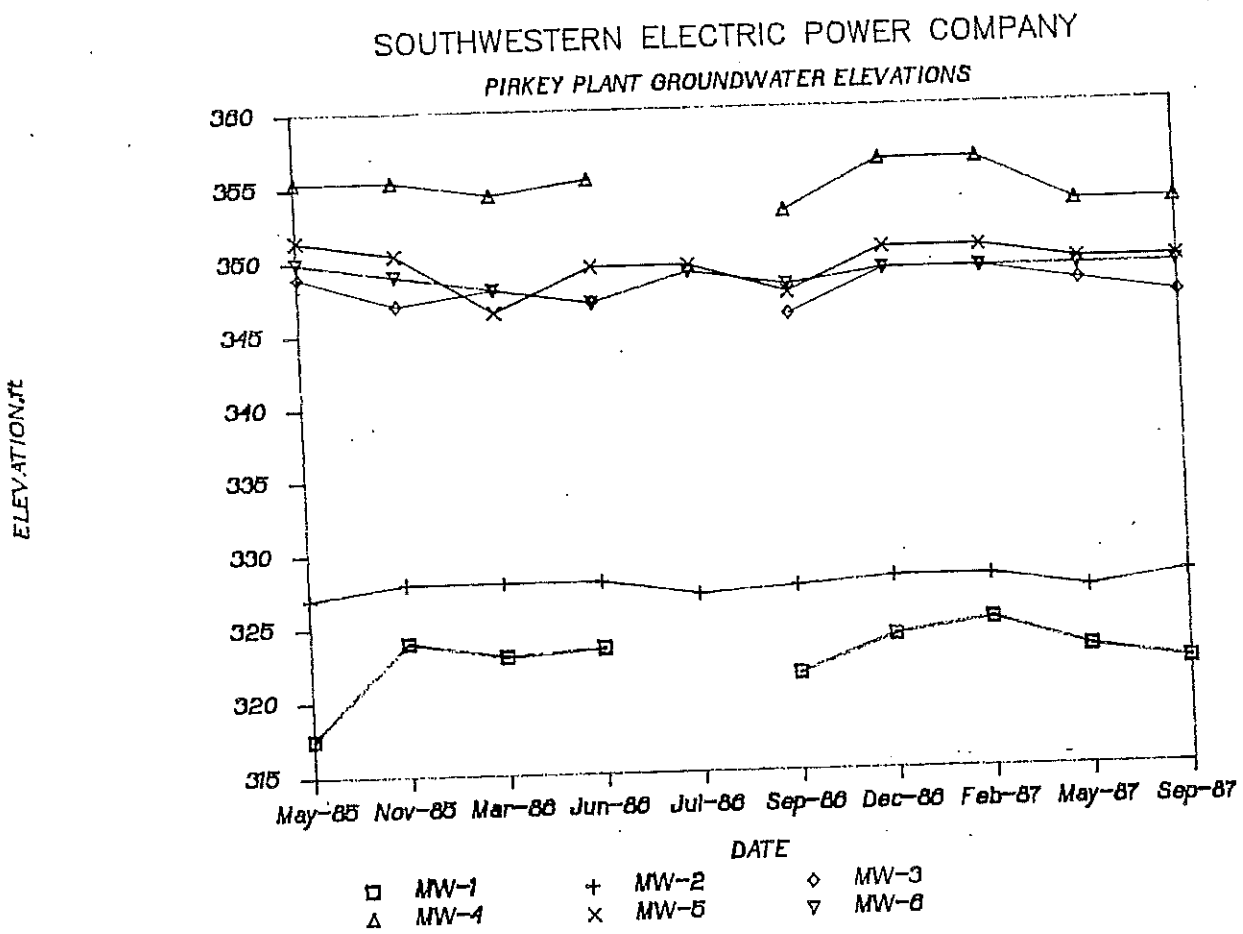
SAMPLE BORING

NOTE: POTENTIOMETRIC SURFACE (9/87), FT(MSL). OTHER MORE DISTANT WELLS WERE ALSO USED TO MAP POTENTIOMETRIC SURFACE. THESE ARE NOT SHOWN DUE TO MAP SCALE.

ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants

FIGURE 3-3

GROUND-WATER POTENTIOMETRIC MAP



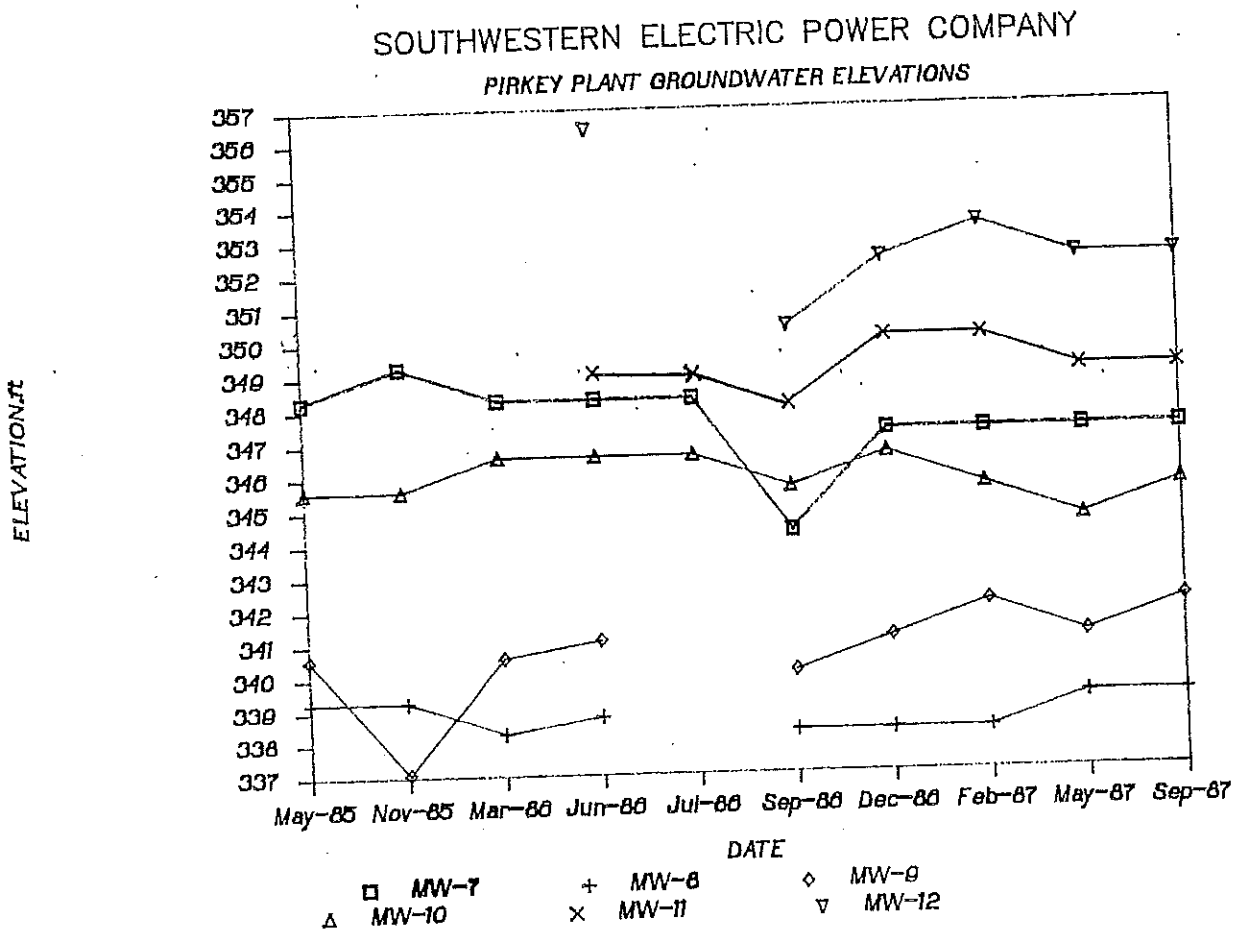


FIGURE 3-4 HISTORICAL PLOTS OF GROUND-WATER ELEVATIONS

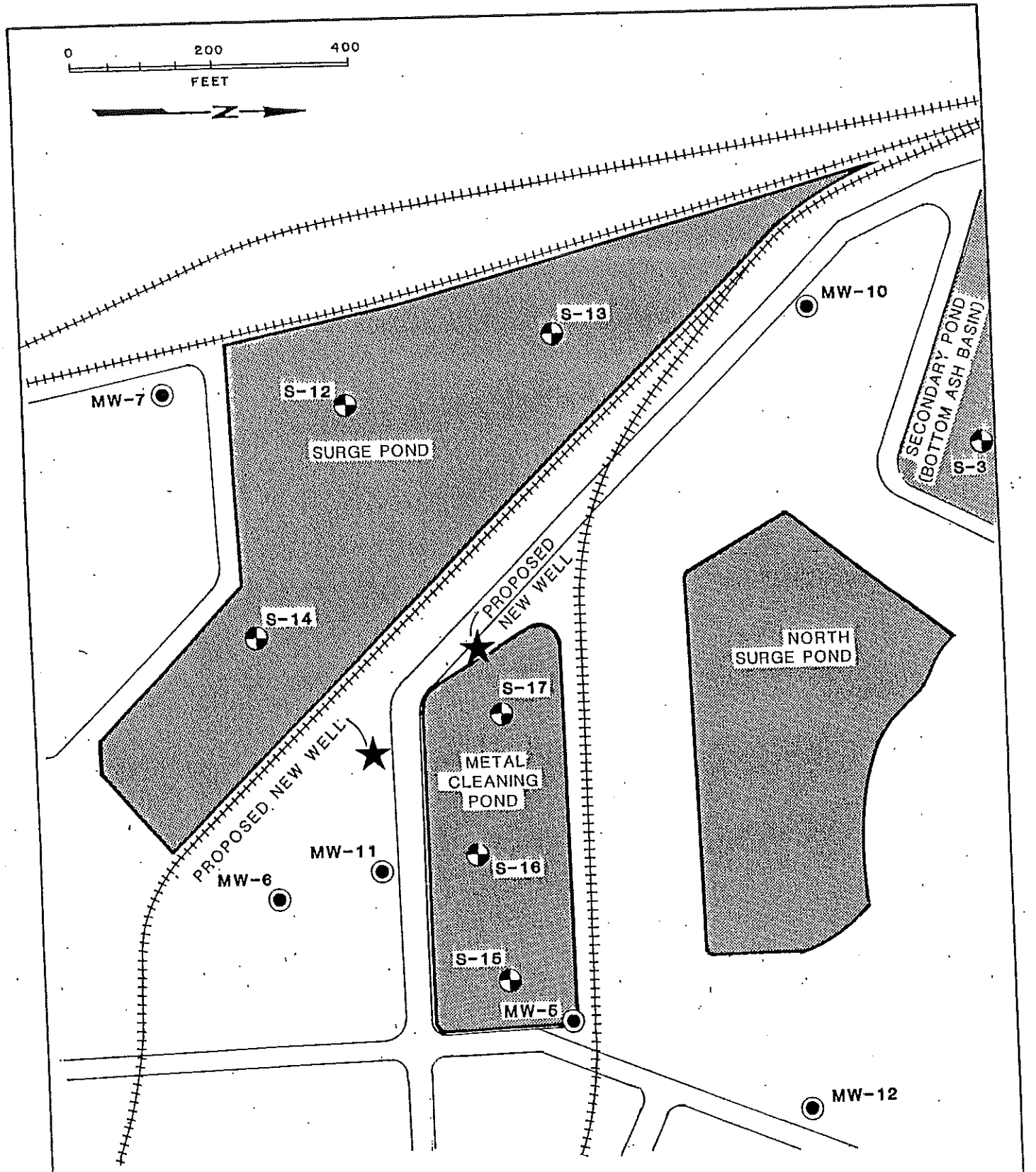
4.0 RECOMMENDATIONS

4.1 MONITORING WELL INSTALLATION

At present, there are no wells monitoring the ground water immediately adjacent to the pond in the direction of MW-7. Given the distance of MW-7 from the pond and the low hydraulic gradient, we recommend that two wells be installed at the locations indicated on Figure 4-1. These wells will provide ground-water quality and flow data immediately adjacent to and down-gradient from the pond in the direction of MW-7. Data from these wells are necessary to provide a basis for locating any additional wells to further assess ground-water quality.

The wells will be installed to approximate depths of 40 feet to monitor the lower silty sand. Each well will have 20 feet of well screen in the approximate interval from 20-40 feet. The well screen installed will be 4 inch diameter, flush-joint threaded, Schedule 40 PVC with .010 inch slots. Each screen will have a backwash valve at the base to facilitate well development. The conductor pipe will be 4-inch diameter flush-joint threaded, Schedule 40 PVC well-casing. All fittings will be threaded and no solvent cementing compounds will be used for any application. A three-foot tall casing riser will be installed to facilitate well development and sampling.

When the well-screen and casing have been installed in the bore-hole, water will be flushed through the casing and out the back-wash valve into the well annulus to remove loose cuttings from the borehole. The well will be gravel-packed with #375 filter pack gravel by use of a tremie pipe. A minimum 1 foot thick bentonite seal will be installed directly on top of the gravel pack to ensure water will not travel down the annular space. A cement/bentonite grout will then be pumped in the borehole with a tremie pipe until returns reach the surface. A 6-inch diameter steel casing protector with locking cap will be cemented around the casing stick-up. A small well-pad will be made with concrete grout to provide strength at the surface and to divert surface water run-off.



ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants

FIGURE 4-1

LOCATIONS OF
PROPOSED MONITORING WELLS

4.2 WELL DEVELOPMENT

After the wells are constructed and allowed to stand for a minimum of 24 hours (to allow the grout to set), the wells will be developed to remove drilling fluids and small particulate matter from the gravel pack and well screen. Development will be accomplished using a method termed "air surging". Air surging involves the use of a compressor, blowing tee and airline to surge air through the well and remove fluid and particulate matter. Each well will be developed until the particulate matter is removed and true formation water is produced. This will be determined on the basis of in-field specific conductivity measurements. When all wells are completed, a surveying subcontractor will be employed to determine the elevation and location of each monitor well.

4.3 PERMEABILITY TESTING

After the monitor wells are developed, depth-to-water level measurements will be recorded to determine the potentiometric surface and direction of ground-water flow. EH&A will then conduct an in-field permeability test to assess the rate of ground-water flow. This test will be a rising-head permeability test utilizing EH&A equipment. The permeability data will be used to assess the time required for contaminants to migrate to monitoring well locations.

4.4 WATER SAMPLING

In addition to these two new wells, we propose to sample MW-5, 6, 7, 10, 11 and 12. Prior to water sampling, depth-to-water level measurements will be obtained and all monitor wells will be purged by withdrawing a minimum of three well volumes of fluid from the well to ensure samples are representative of true ground-water conditions. In-field sample filtering is required and will occur through the use of a Geofilter peristaltic pump system equipped with .45 micron filters. Each sample will be placed in a container suitable for the constituent analyzed, preserved as necessary, and cooled to $4^{\circ}C$ to prevent the formation of precipitates. All samples will be delivered to the laboratory within 24 hours of collection.

4.5 WATER QUALITY ANALYSES

Water samples will be analyzed by a competent analytical laboratory. Sample containers will be provided by the laboratory to ensure quality control. All samples will be analyzed using EPA methods.

The list of proposed water quality analyses are as follows:

pH*
Conductivity*
Sulfate
Chloride
Calcium
Magnesium
Sodium
Total Dissolved Solids

*Field parameters

Although pH is the parameter of concern, we feel the additional parameters will provide indications of general water quality.

4.6 GROUND-WATER FLOW ANALYSIS

EH&A will analyze the field and laboratory data in conjunction with existing data, to determine the flow rate and direction of ground-water movement, and the presence of any contaminants. The specific goal of the ground-water flow analysis will be to assess ground-water travel times from the pond to MW-7 relative to the potential leakage from the pond.

Pir Key - IWE Haz waste

Southwestern Electric Power Company

FOR COMPANY BUSINESS ONLY

SUBJECT Sample Collection - Metal Cleaning Waste Pond DATE 11-6-87

LOCATION H. W. Pirkey Power Plant

Mr. J. A. Pruett

On November 5, 1987, I met with Mr. William Gibson of the Texas Water Commission to conduct soil sampling on the metal cleaning waste pond located at Pirkey Power Plant. The TWC required that we collect several representative "grab" soil samples from this impoundment and analyze for pH prior to their authorizing SWEPCO to proceed with the final phase of the closure which will require that a non-SWEPCO professional engineer certify that the closure has been performed properly. Mr. Gibson observed and supervised the soil sample collection and analysis. An outline of the sample collection and pH analysis follows:

1) Eleven soil samples were collected from the metal cleaning waste pond from 2:20 - 2:40 p.m. A diagram of the sample locations is attached.

2) Weighed 20 grams of each sample and placed in individual plastic cups. Added 20 ml of deionized water to each sample. Stirred samples for 30 minutes and let stand from 4:15 - 5:15 p.m.

3) The SWEPCO pH meter was calibrated with pH 4.0 and 7.0 standard buffer solutions. Analysis for pH began at 5:15 p.m. and was completed at 5:50 p.m. The following results were obtained.

Sample I.D.	SWEPCO pH	TWC pH
1	4.21	3.73
2	4.75	4.36
3	4.09	3.50
4	3.69	3.37
5	3.65	3.44
6	4.02	3.70

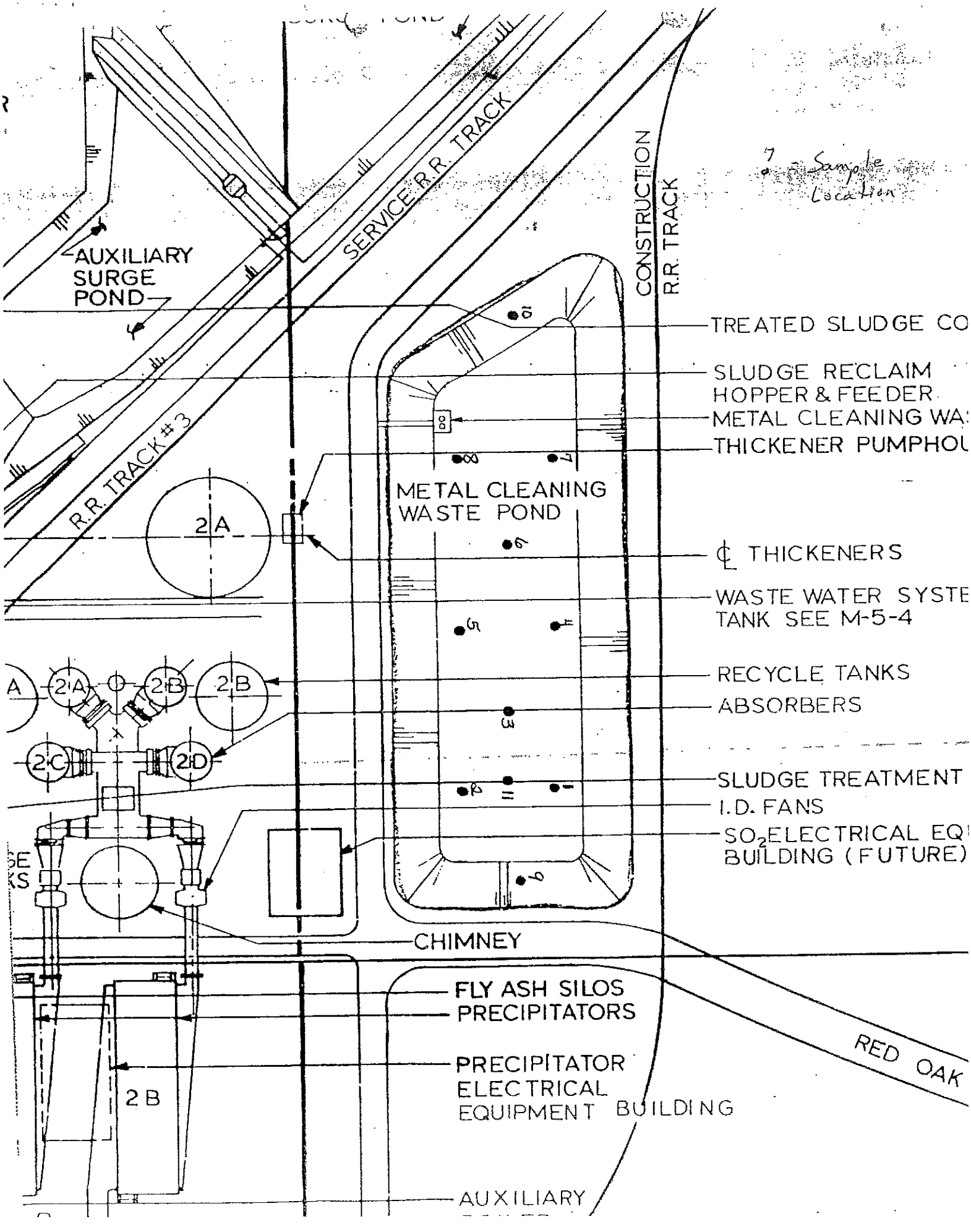
7	6.58	6.44
8	4.64	4.43
9	3.84	3.90
10	4.31	3.98
11	3.57	3.28

Note: Orion Electrode utilized by the TWC exhibited an unusually slow response during pH measurements.

Based on the above SWEPCO data, Mr. Gibson has informed me that the TWC District V office was going to recommend to Mr. David Buchanan that approval be granted for SWEPCO to move to the final phase of the closure plan.

Brian Bond

BB/db
File, w


AUXILIARY SURGE POND
SERVICE R.R. TRACK
CONSTRUCTION R.R. TRACK
R.R. TRACK #3
METAL CLEANING WASTE POND
2A
2B
2C
2D
CHIMNEY
FLY ASH SILOS
PRECIPITATORS
PRECIPITATOR ELECTRICAL EQUIPMENT BUILDING
RED OAK
AUXILIARY
TREATED SLUDGE CO
SLUDGE RECLAIM HOPPER & FEEDER
METAL CLEANING WA
THICKENER PUMPHOU
℄ THICKENERS
WASTE WATER SYSTE TANK SEE M-5-4
RECYCLE TANKS
ABSORBERS
SLUDGE TREATMENT
I.D. FANS
SO2 ELECTRICAL EQ BUILDING (FUTURE)
7 - Sample Location

H. W. PIRKEY POWER PLANT
GROUNDWATER MONITORING PROGRAM

I. Background

Groundwater samples are collected and analyzed quarterly at the H. W. Pirkey Power Plant. This sampling program was initiated in May, 1985 and will be effective in early detection of any potential contamination of groundwater resulting from the on-site disposal of wastes generated as the result of the operation of a lignite-fired power plant. Analyses performed on these groundwater samples provide for a comprehensive quarterly review of the concentrations of all contaminants generated and common to lignite power plant operations.

II. Groundwater Level Determinations

Groundwater level data associated with H. W. Pirkey Power Plant's monitoring wells MW 1-10, is determined by physically measuring the distance from ground level to water level and subtracting this value (feet) from the ground elevation of each monitoring well.

A Slope Indicator Company water level indicator, Model 51453, is used to make these quarterly measurements.

III. Sampling Procedure

The sampling procedure utilized in groundwater monitoring efforts at H. W. Pirkey Power Plant are as follows:

(1) Groundwater depth is measured and calculations are performed to determine the volume of groundwater that must be pumped from the monitoring well to allow for representative sample collection.

(2) A 1.7" Brainard Kilman Hand Pump is assembled and placed into monitoring well. This pump is rinsed if necessary to remove any sediment or contamination prior to proceeding to another well location.

(3) Each monitoring well is hand pumped and samples are collected, preserved and analyzed according to EPA approved analytical procedures set forth in 40 CFR 136.

H. W. PIRKEY POWER PLANT
SURGE PONDS

I. Soil and Liner Information

Insitu native clay liners were used in the construction of the Surge Pond and North Surge Pond at Pirkey Power Plant. Prior to construction of this plant, the area in which these ponds are now located consisted of scattered timber and unimproved pasture. There is no knowledge of any activities that may have increased acidity or alkalinity of the soil in this area.

II. Chemical Constitutents

The surge ponds located at H. W. Pirkey Power Plant receive process waters and sludges utilized, produced and/or recirculated in the limestone slurry (wet) scrubber system. The major chemical constituents found in this pond are calcium, magnesium, sulfate, chlorides and carbonates. Other constituents common in smaller concentrations are sodium, nitrates, phosphates, silica, aluminum, barium, copper, iron, manganese, potassium, selenium, strontium and zinc.

832964

LOG OF BORING

PROJECT: Waste Water Ponds
CLIENT: SWEPCO

BORING NO.: MW-5
LOCATION: Hallsville

Date: 9-27-83 Type: Auger Ground Elevation: 362.5

N 2+61.5
W 7+82.2

Legend: ■ Sample X Penetration ▼ Water

Depth, Feet	Symbol	Sample	Description of Stratum
5			Very stiff brown and grey clay w/iron ore
10			Very stiff grey clay
15			Very stiff brown clay w/silty sand lenses
20			Firm brown and grey clayey silty sand
25			Firm grey clayey silty sand
30			Very dense grey silty sand w/clay pockets 11-33=7" 50 B/7"
35			Very dense grey clayey silty sand 16-34=11" 50 B/11"
40			Very dense grey clayey silty sand 26-24=9" 50 B/9"
45			Very dense grey clayey silty sand 11-39=11½" 50 B/11½"
50			Bottom of boring at 45½'.

832964

LOG OF BORING

PROJECT: Waste Water Ponds
CLIENT: SWEPCO

BORING NO.: MW-6
LOCATION: Hallsville

Date: 10-3-83 Type: Auger Ground Elevation: 361.0

S 1+84.6
W 10+60.5

Legend: ■ Sample X Penetration ▼ Water

Depth, Feet	Symbol	Sample	Description of Stratum
5			Stiff tan and grey clay w/silt lenses and iron ore
10			Very stiff tan and grey clay w/silt lenses and iron ore
15			Firm tan and grey clayey silty sand
20			Loose brown and grey clayey silty sand
25			Very dense grey clayey silty sand 25-25=11½" 50 B/11½"
30			Firm grey clayey silty sand 7-7-17 24 B/F
35			Very dense grey clayey silty sand 25-25=9" 50 B/9"
40			Very dense grey clayey silty sand 18-32=10½" 50 B/10½"
			Bottom of boring at 40 feet.
45			
50			

832964

LOG OF BORING

PROJECT: Waste Water Ponds
CLIENT: SWEPCO

BORING NO.: MW-7
LOCATION: Hallsville

Date: 10-3-83 Type: Auger Ground Elevation: 358.3

S 2+23.9
W 17+24.45

Legend: ■ Sample X Penetration ▼ Water

Depth, Feet	Symbol	Sample	Description of Stratum
5			Stiff red, tan and grey sandy silty clay w/iron ore
10			Stiff tan and grey clay w/iron ore
15			Stiff tan and grey silty sandy clay lenses w/iron ore
20			Stiff tan and grey very sandy silty clay
25			Firm tan and grey clayey silty sand
30			Very dense grey silty sand 23-27=12" 50 B/F
35			Very dense grey clayey silty sand 17-35=12" 50 B/F
40			Very dense grey clayey silty sand 25-25=10½" 50 B/10½"
			Bottom of boring at 40 feet.
45			
50			

832964

LOG OF BORING

PROJECT: Waste Water Ponds
CLIENT: SWEPCO

BORING NO.: MW-10
LOCATION: Hallsville

Date: 10-10-83 Type: Auger Ground Elevation: 358.6

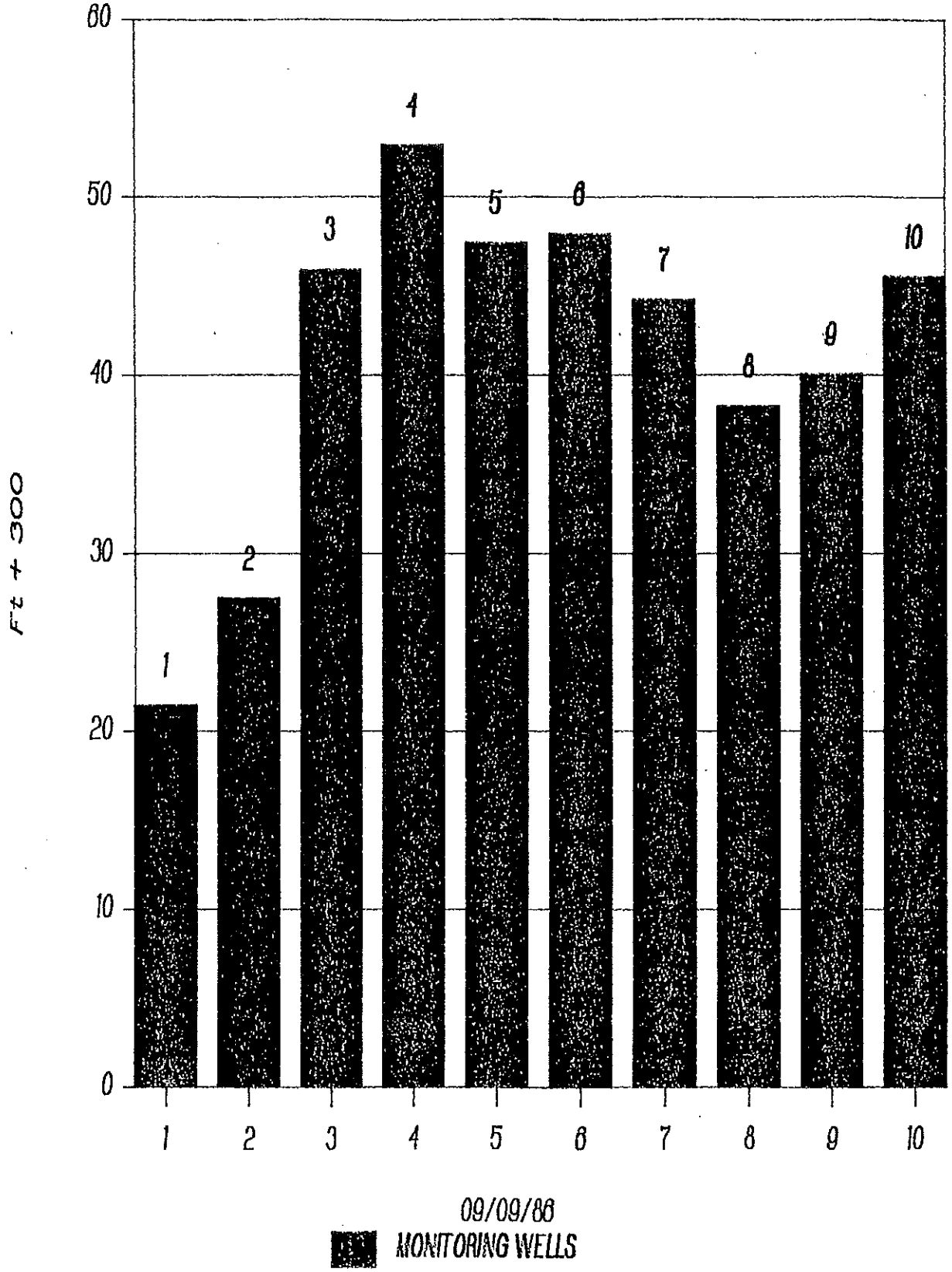
N 6+56.9
W 18+31.3

Legend: ■ Sample X Penetration ▼ Water

Depth, Feet	Symbol	Sample	Description of Stratum
5			Stiff tan and grey silty clay w/iron ore
10			Hard brown silty clay
15			Stiff tan and grey silty clay w/iron ore
20			Dense brown silty sand w/iron ore 13-15-19 34 B/F
25			Firm grey clayey silty sand 15-9-13 22 B/F
30			Dense grey clayey silty sand 8-12-28 40 B/F
35			Very dense grey clayey silty sand 19-31=11" 50 B/11"
40			Very dense grey clayey silty sand 24-26=10" 50 B/10"
			Bottom of boring at 40 feet.
45			
50			

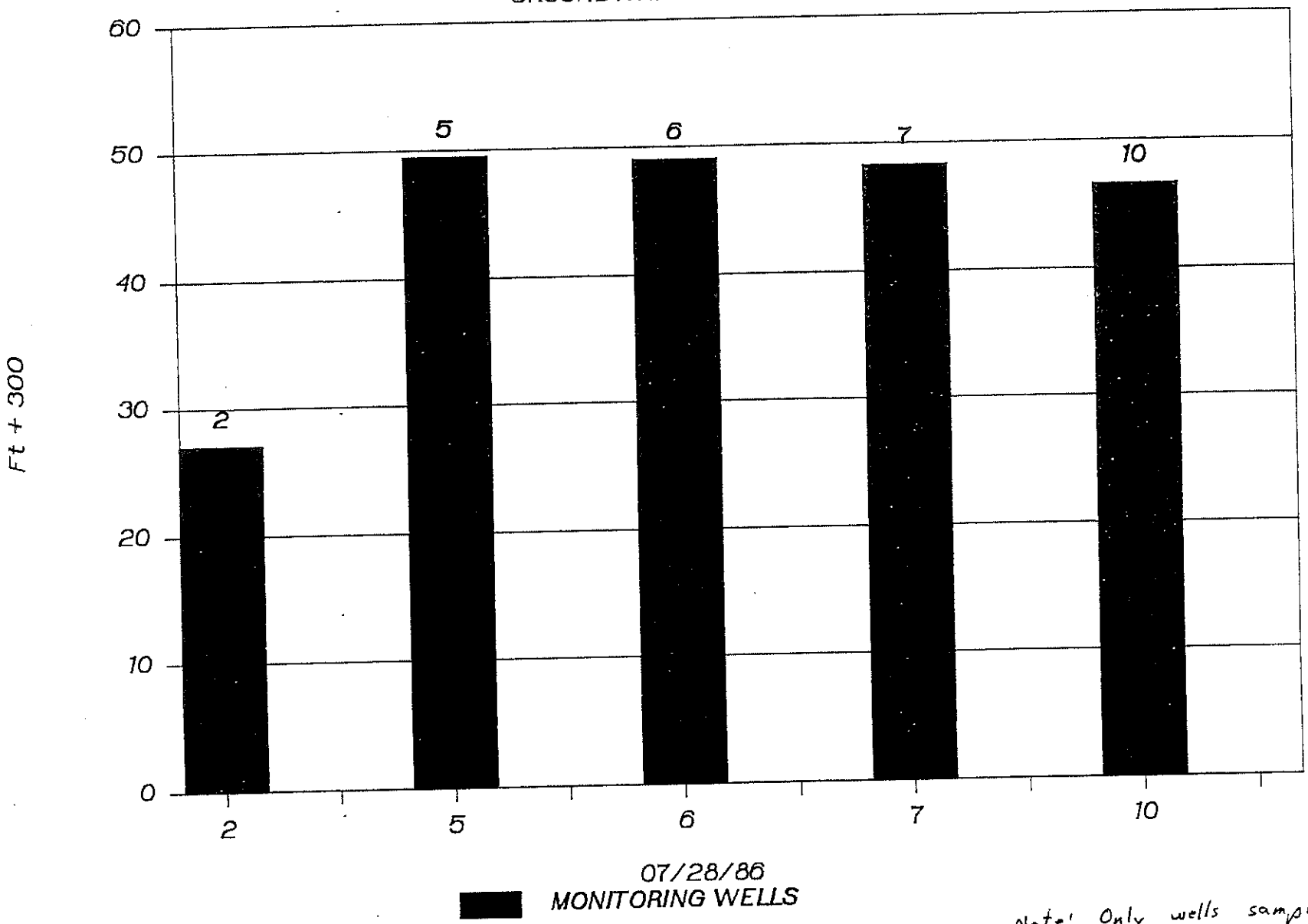
PIRKEY POWER PLANT

GROUNDWATER ELEVATIONS



PIRKEY POWER PLANT

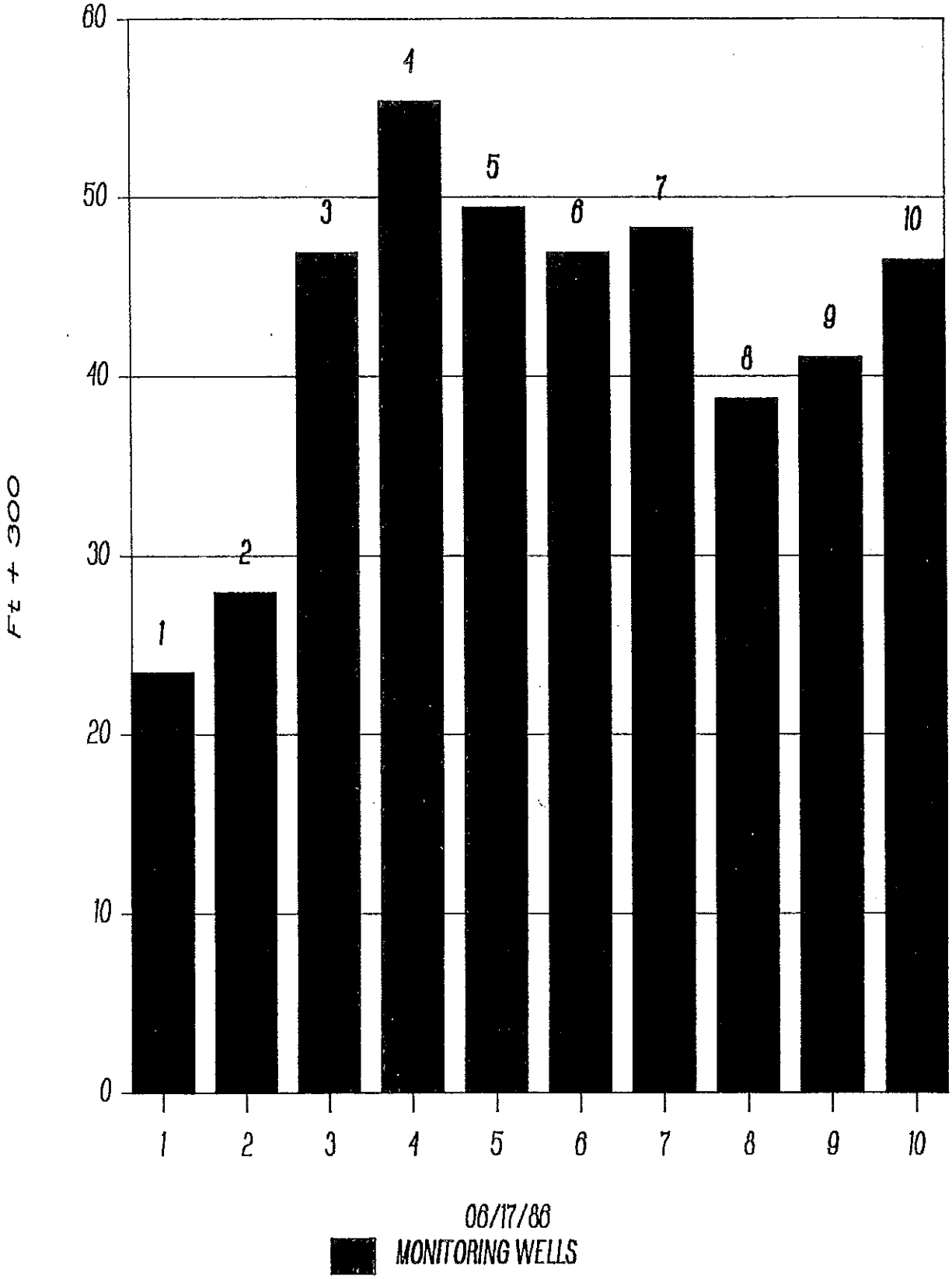
GROUNDWATER ELEVATIONS



Note! Only wells sampled on this date.

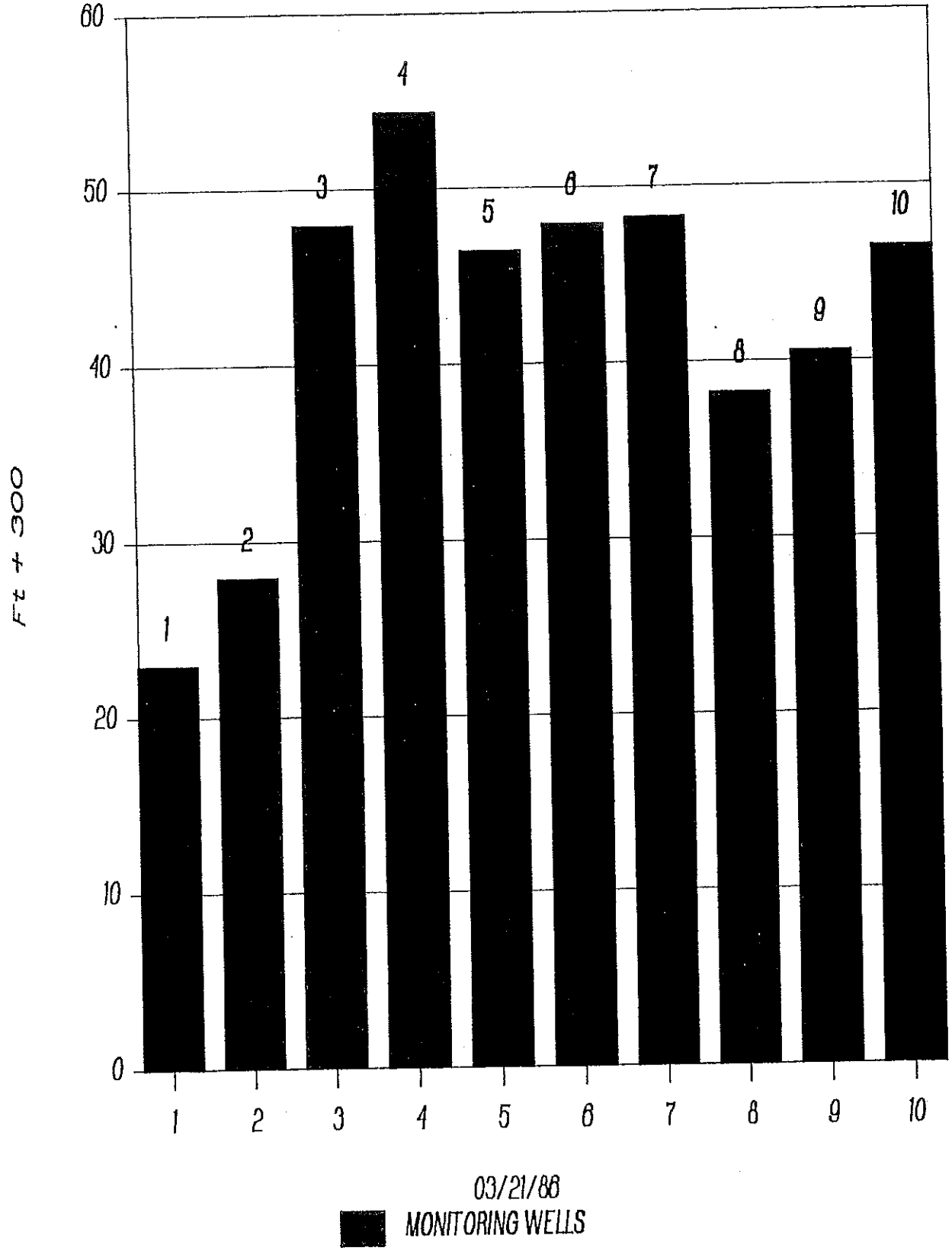
PIRKEY POWER PLANT

GROUNDWATER ELEVATIONS



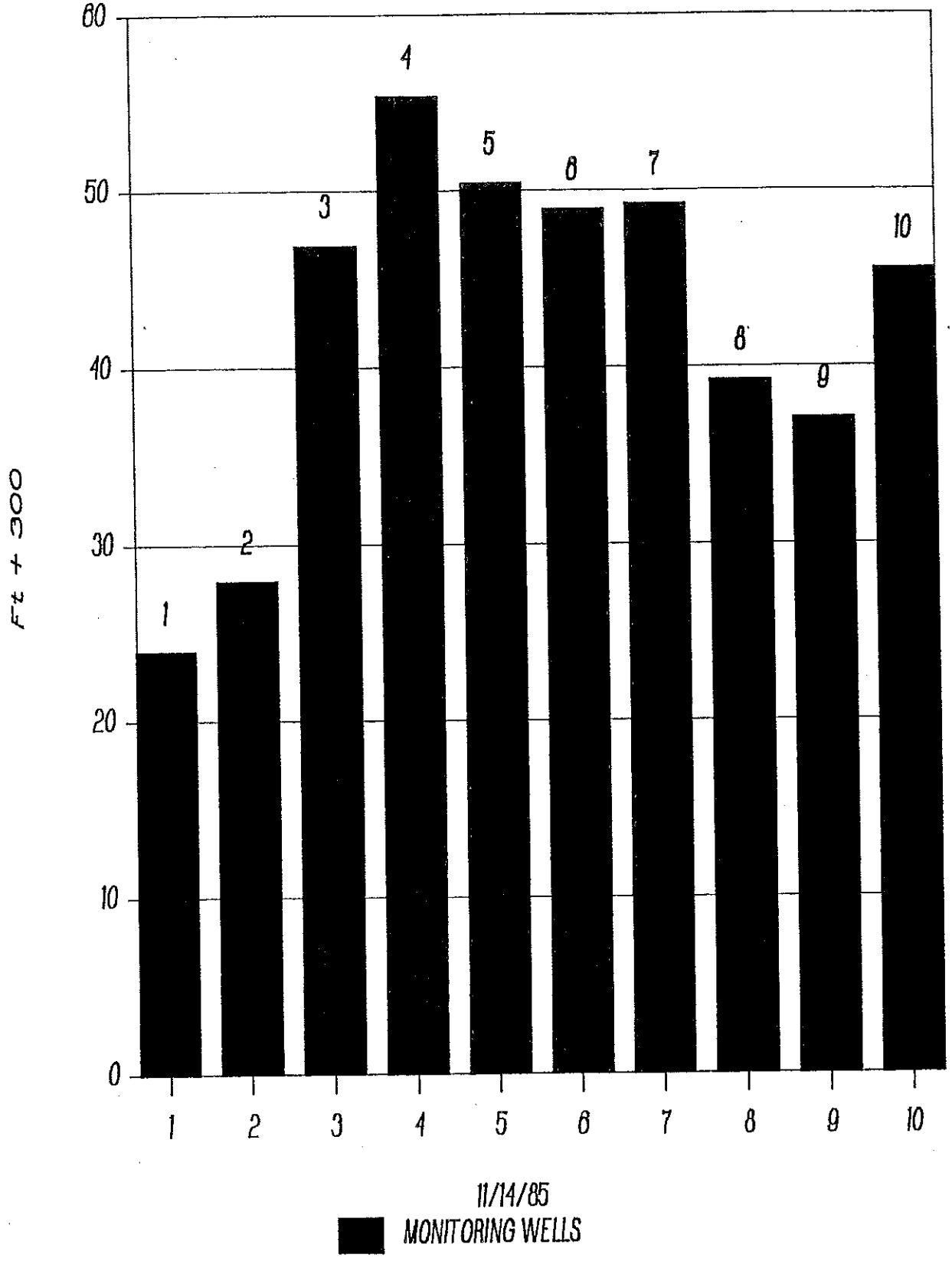
PIRKEY POWER PLANT

GROUNDWATER ELEVATIONS

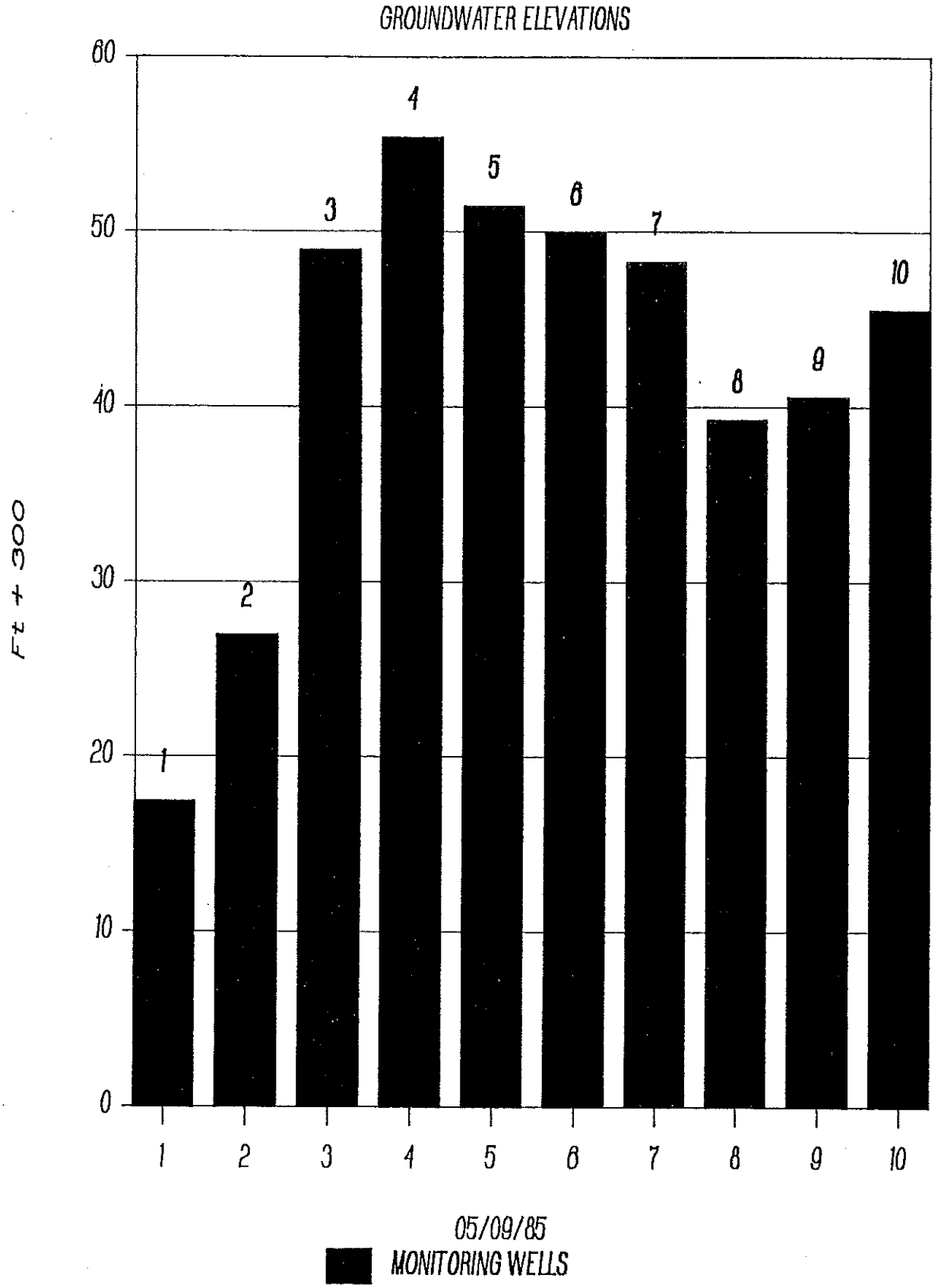


PIRKEY POWER PLANT

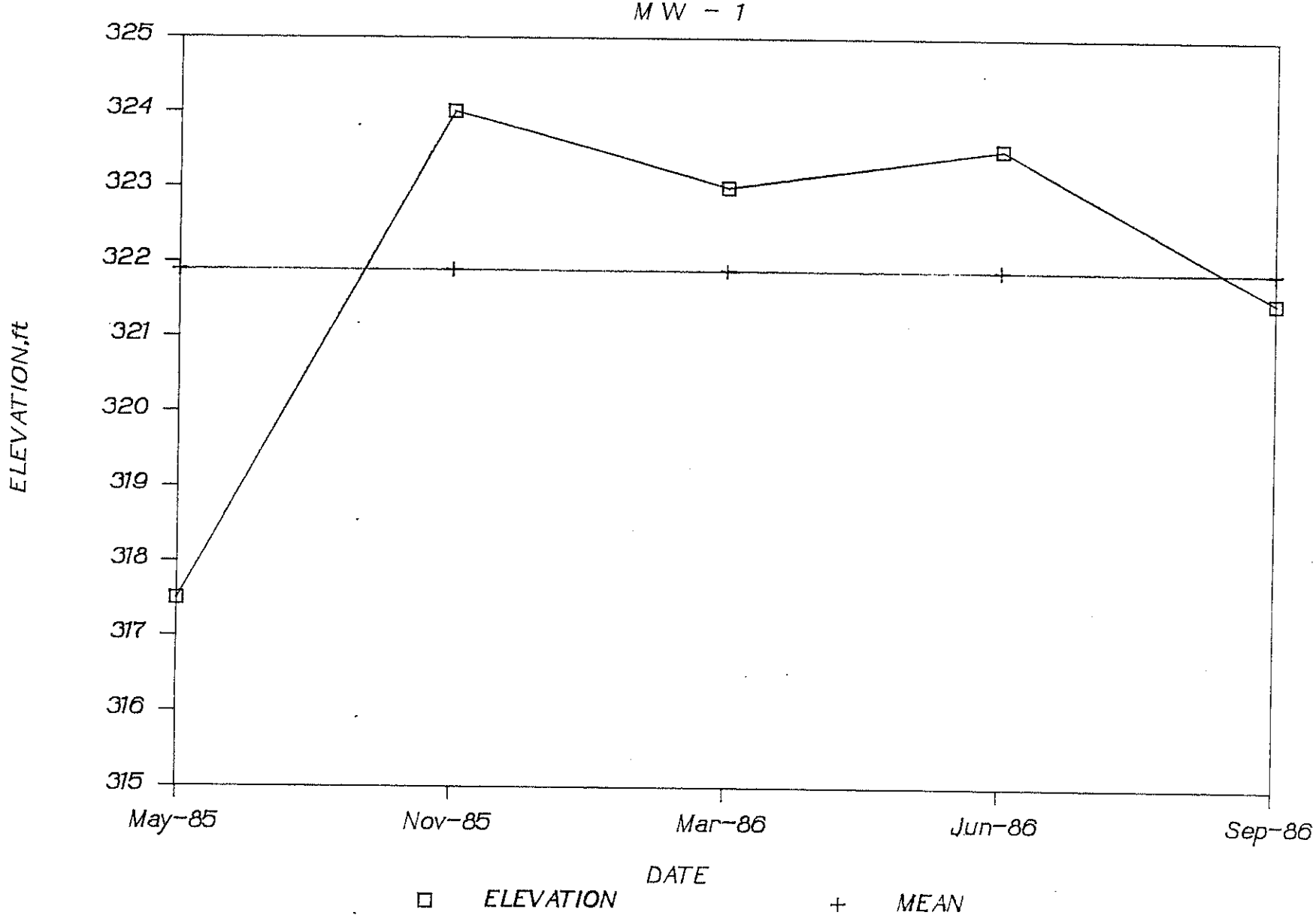
GROUNDWATER ELEVATIONS



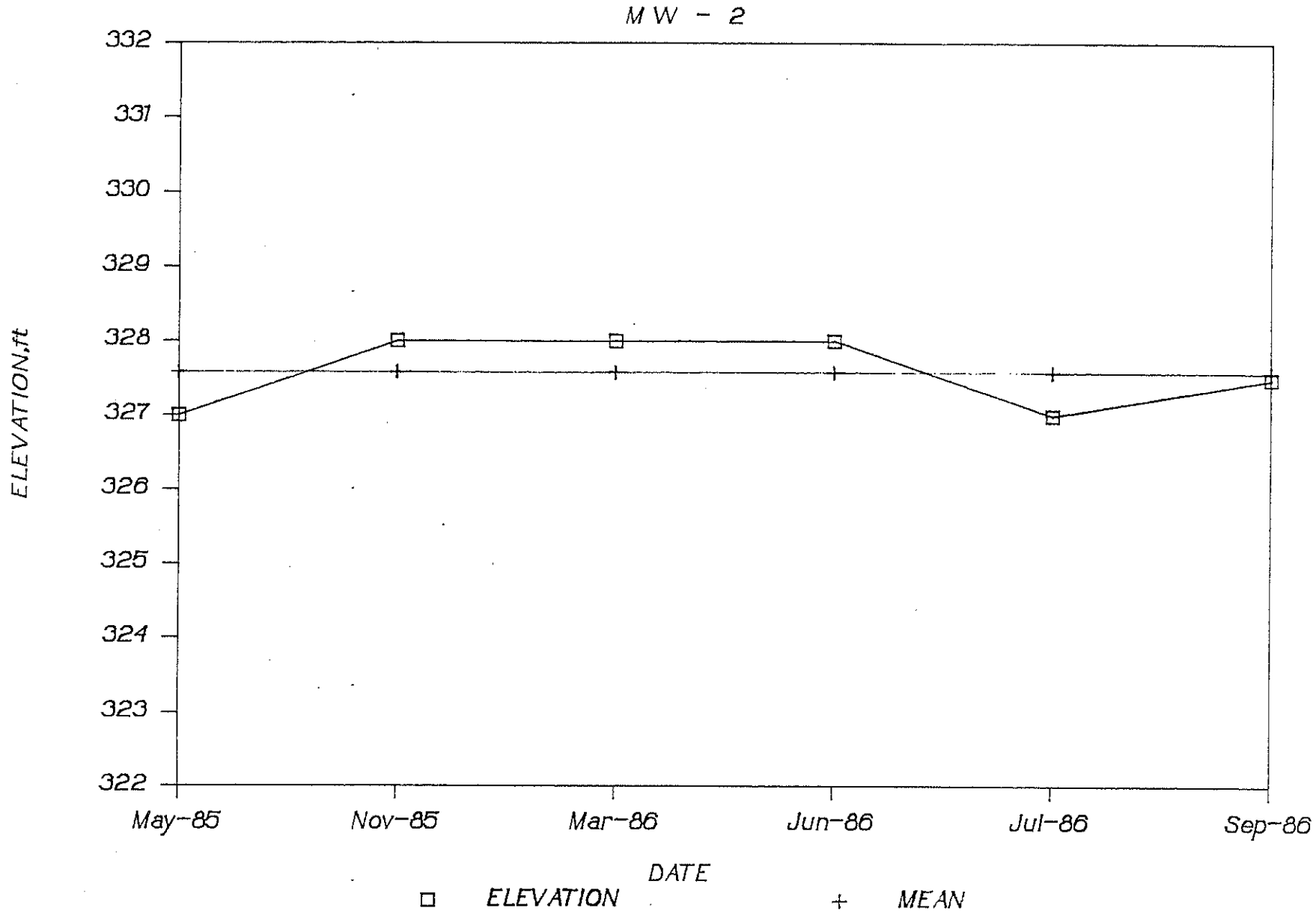
PIRKEY POWER PLANT



PIRKEY POWER PLANT

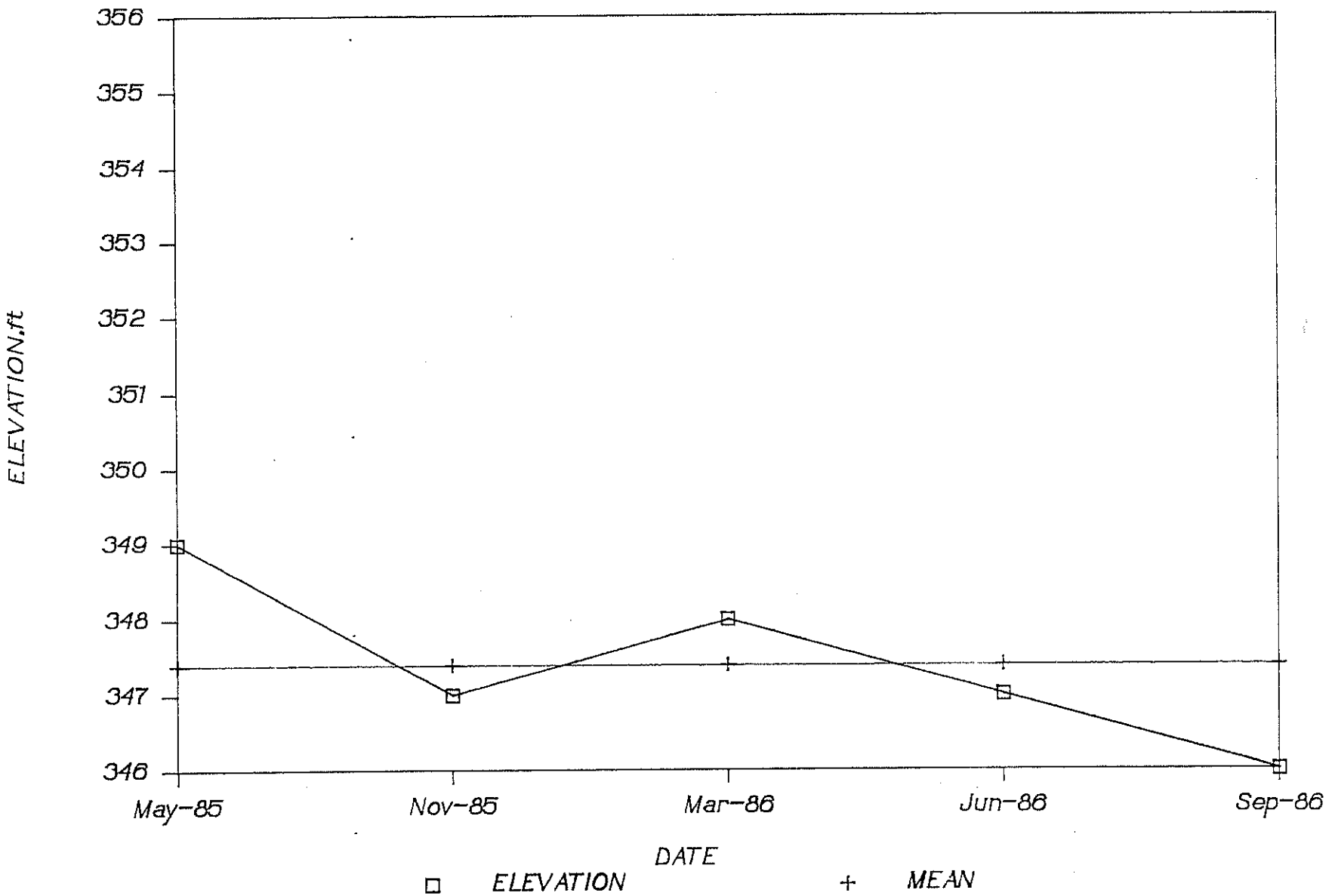


PIRKEY POWER PLANT



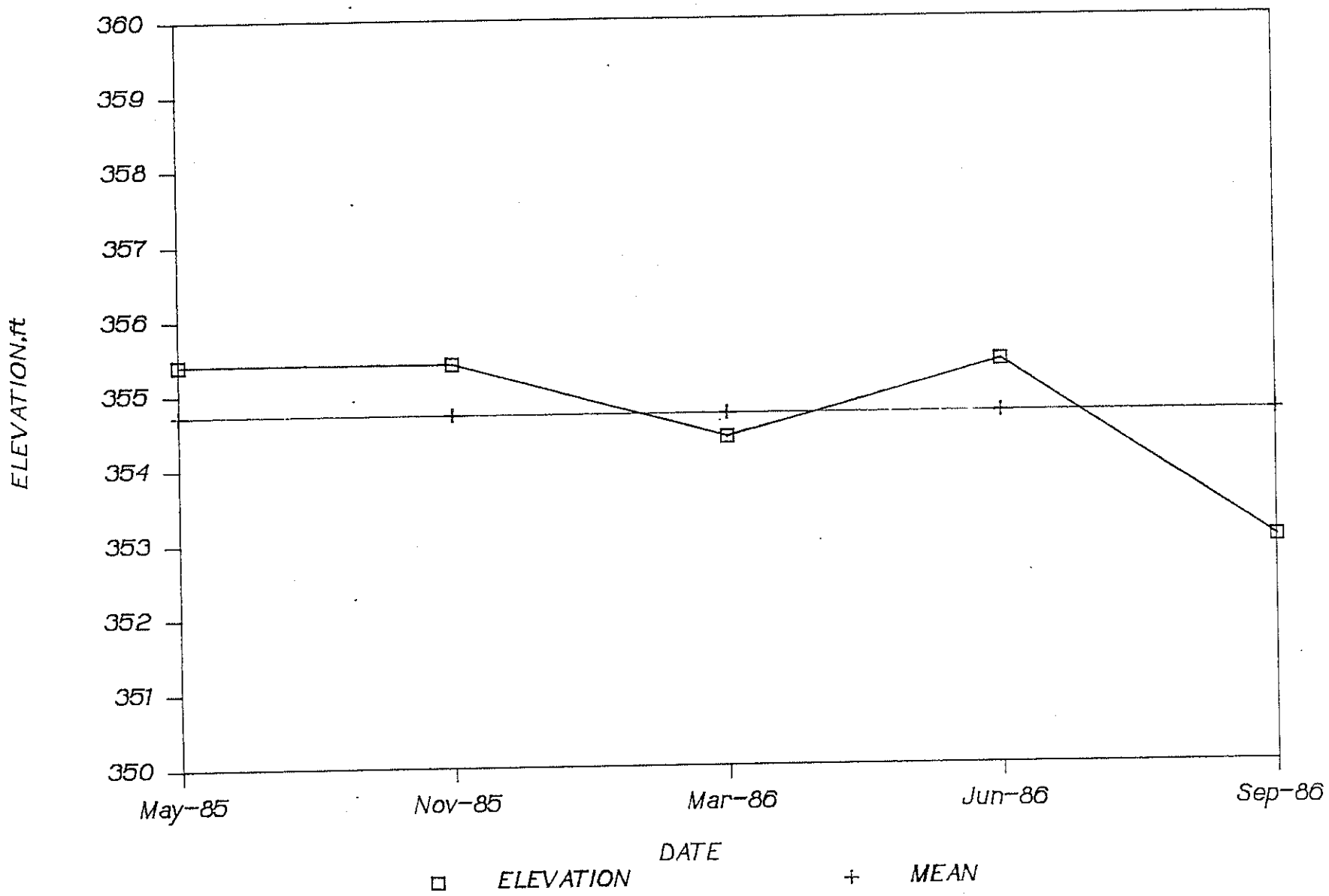
PIRKEY POWER PLANT

MW - 3



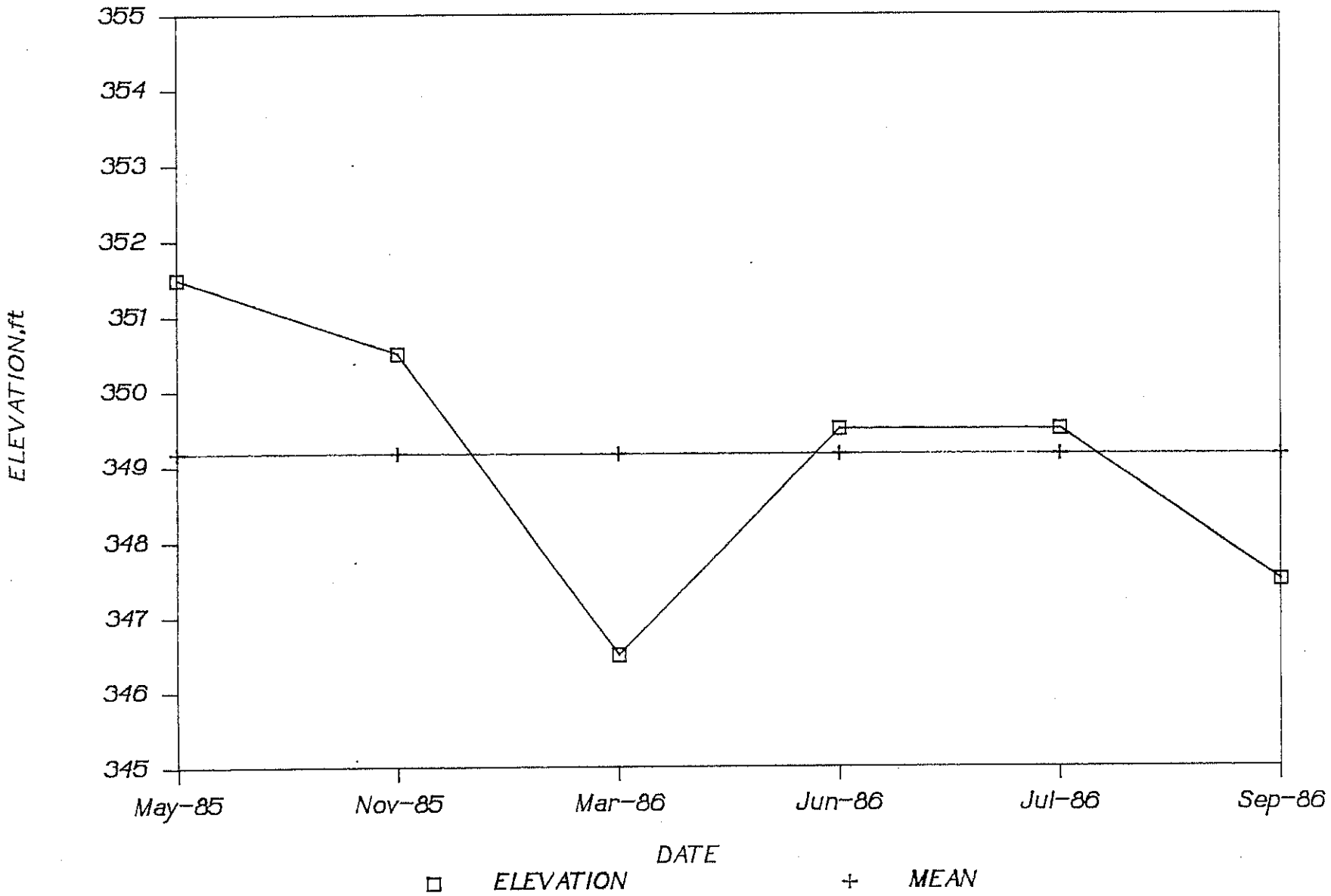
PIRKEY POWER PLANT

MW - 4



PIRKEY POWER PLANT

MW - 5



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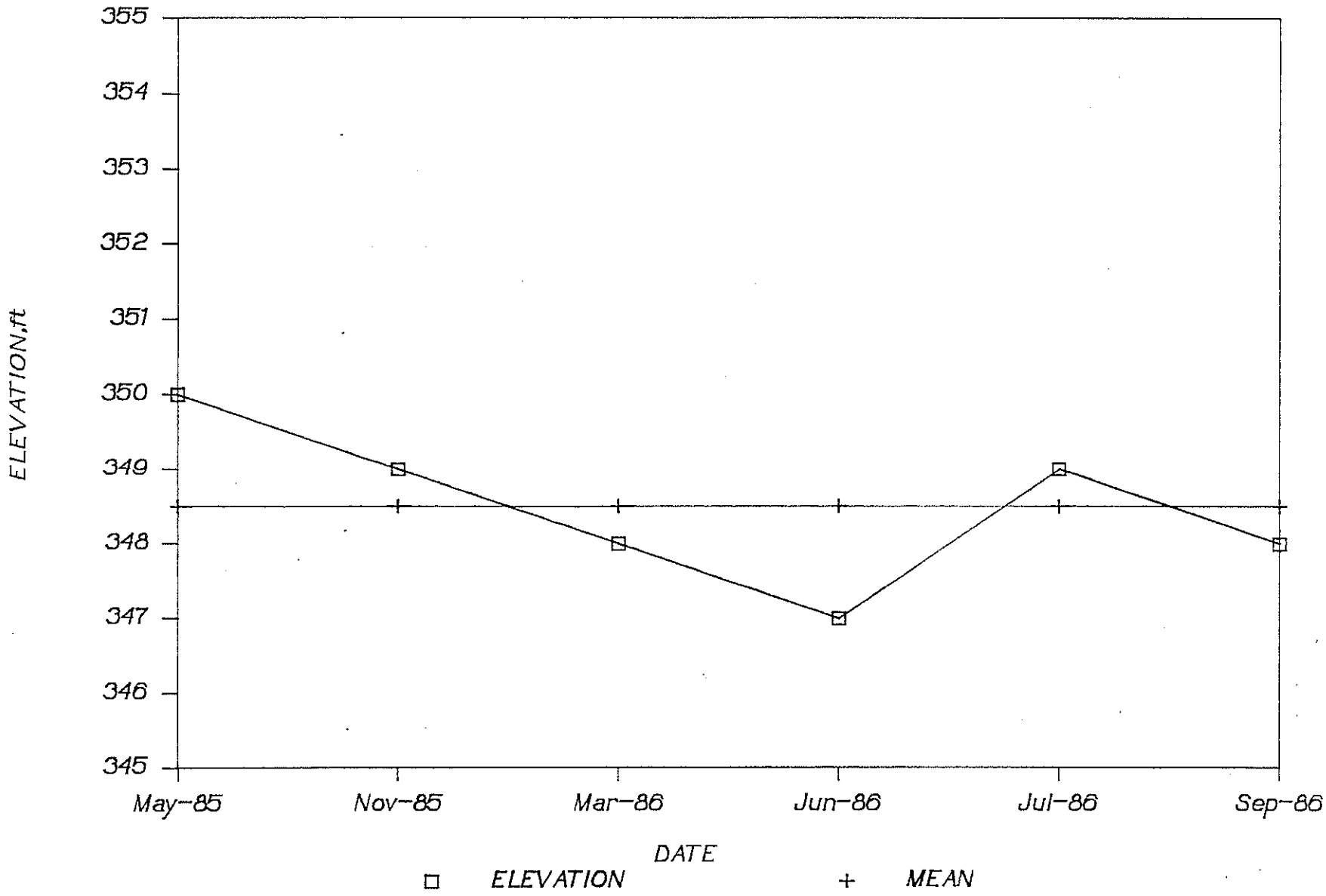
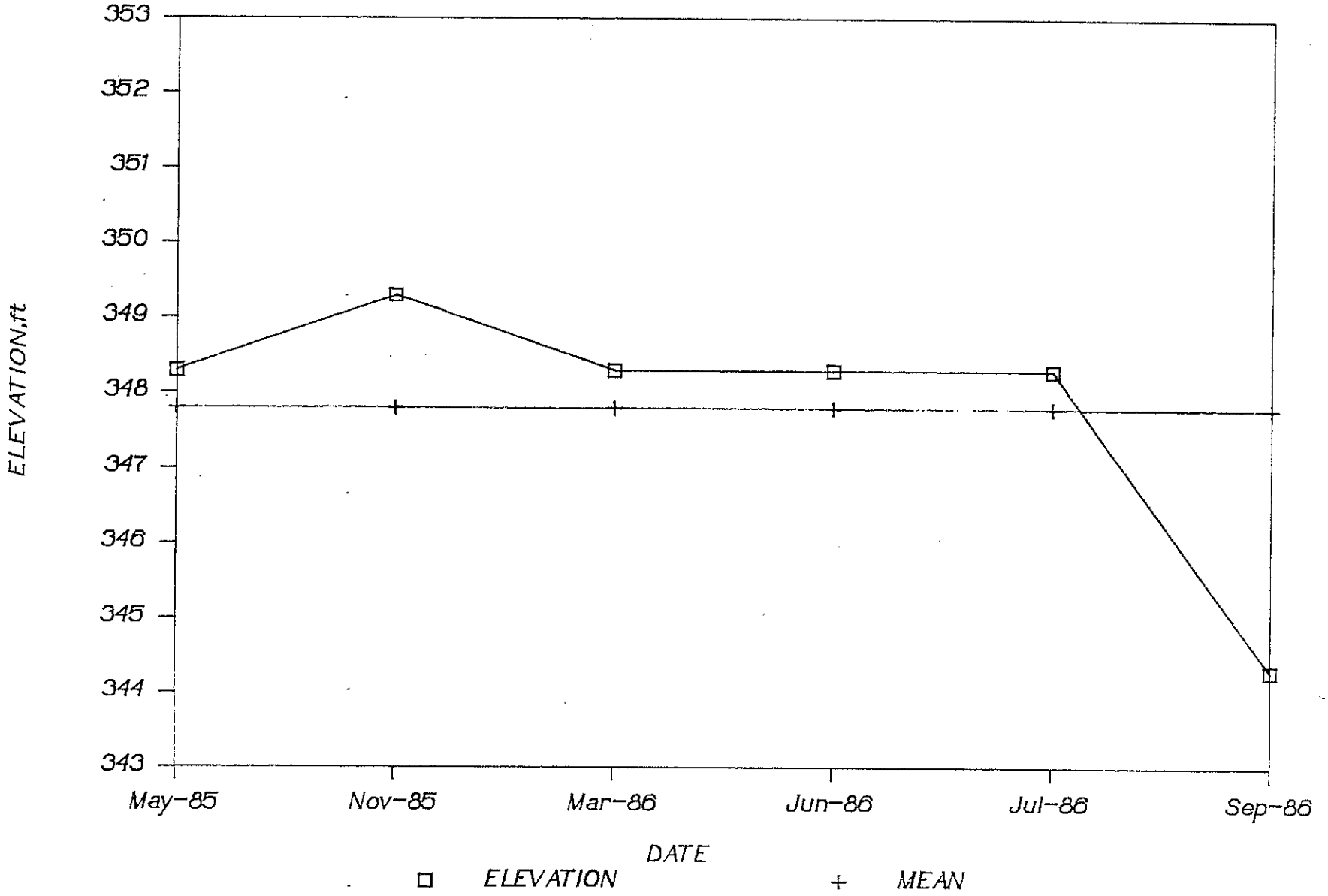


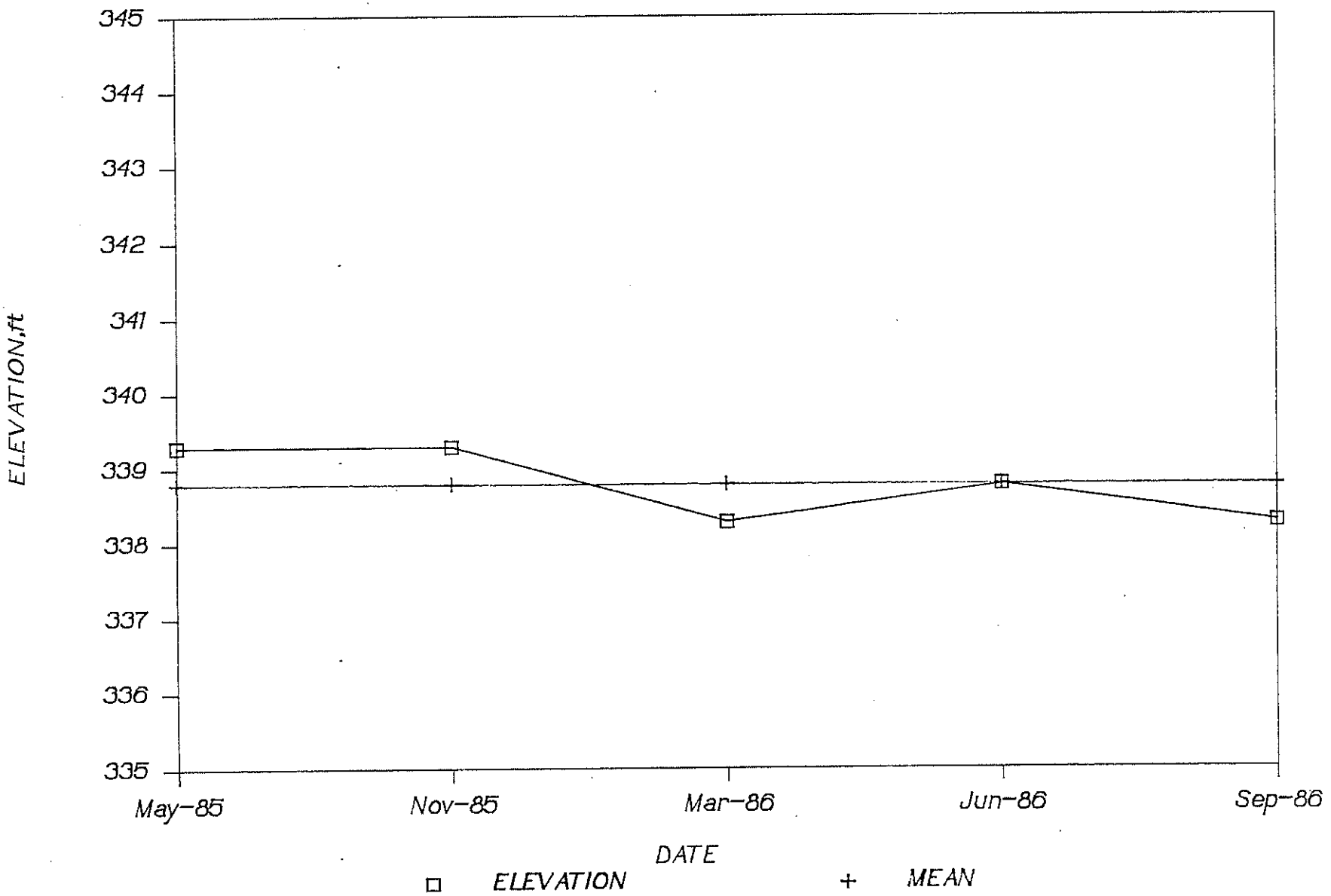
PIRKEY POWER PLANT

MW - 7



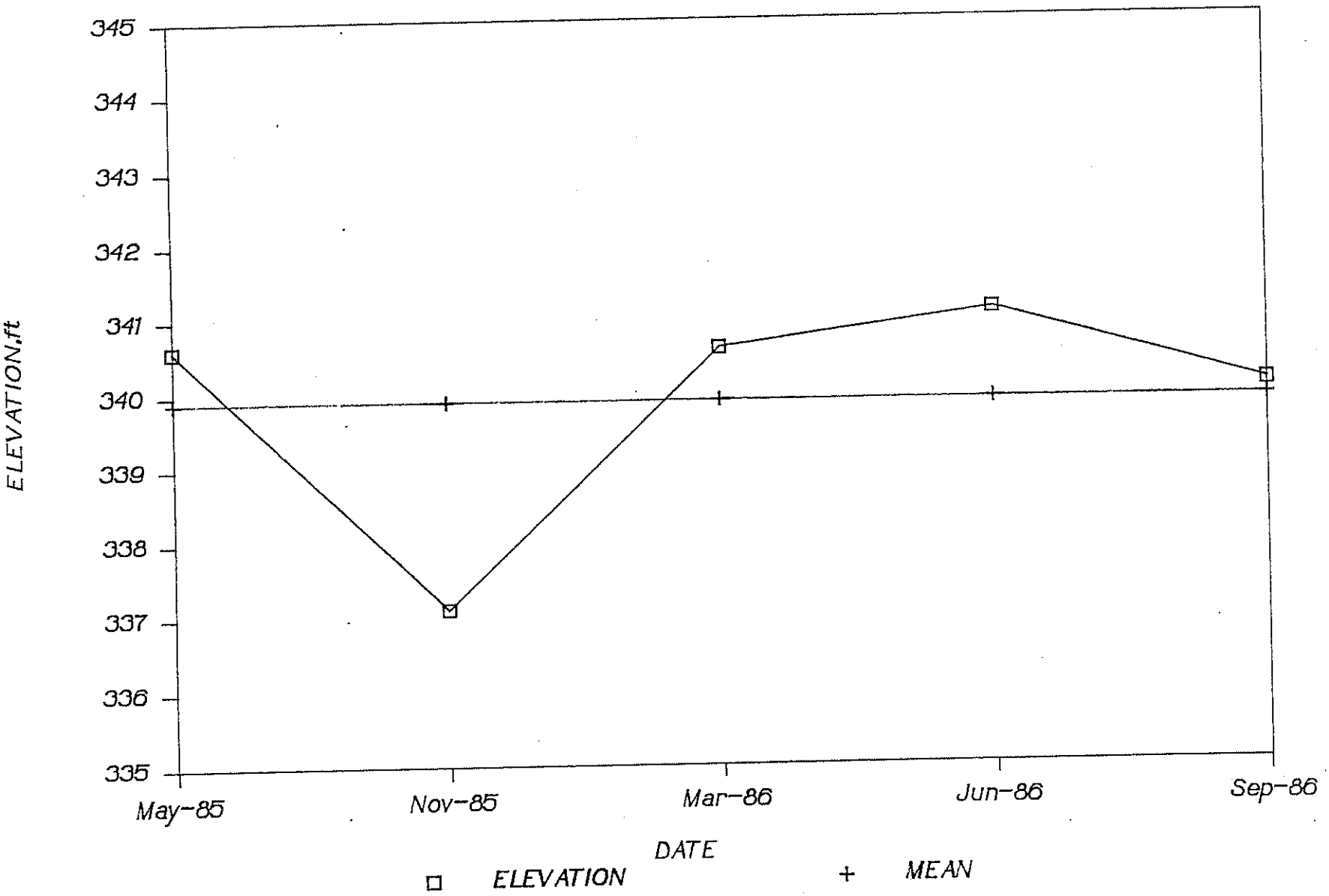
PIRKEY POWER PLANT

MW - 8

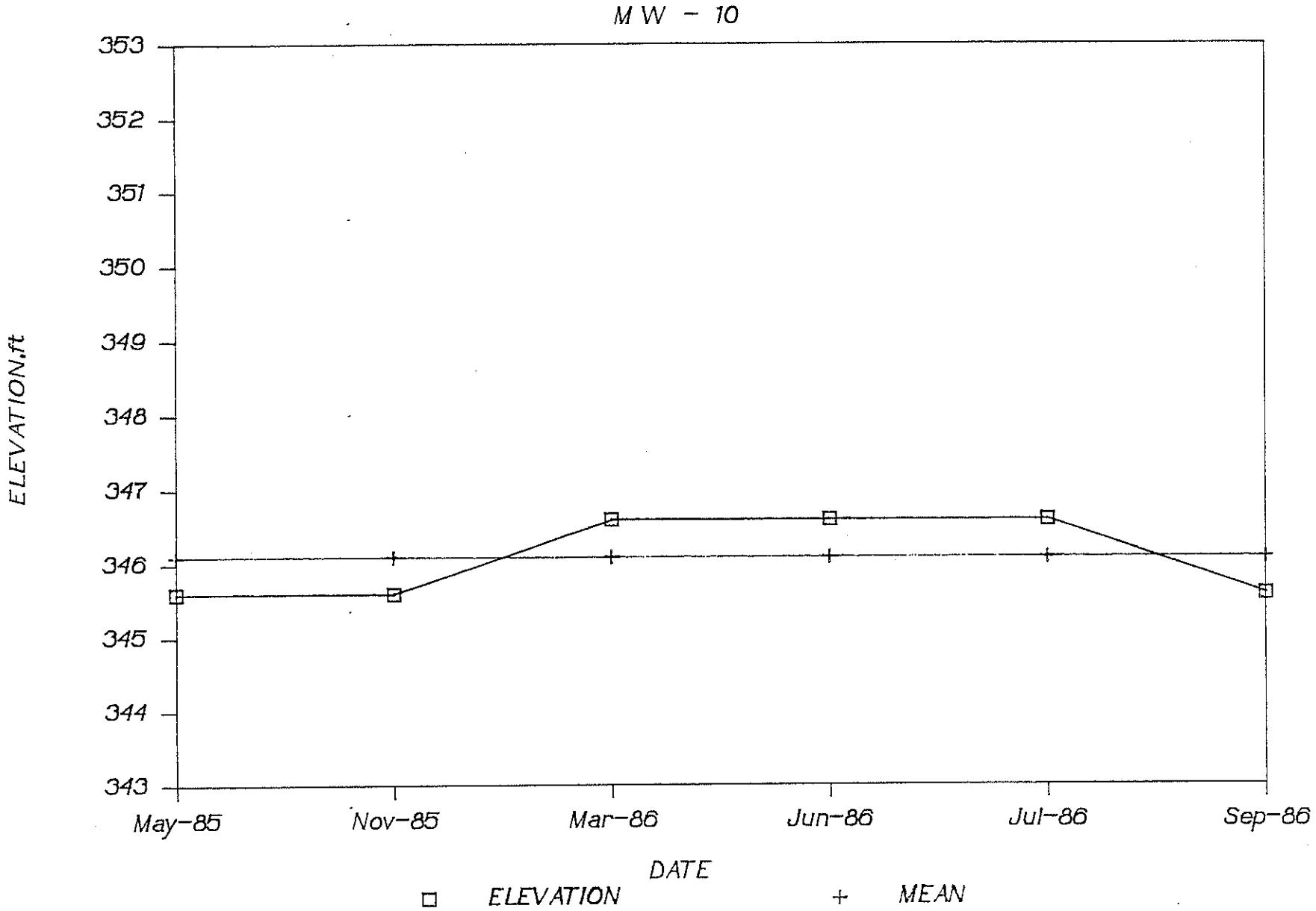


PIRKEY POWER PLANT

MW - 9



PIRKEY POWER PLANT



Pirkey - TWC
Haz Waste

Southwestern Electric Power Company
P. O. BOX 21106 - SHREVEPORT, LOUISIANA 71156

October 10, 1986

Mr. David Buchanan
Hazardous and Solid Waste Division
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, Texas 78711

Re: Metal Cleaning Pond
H. W. Pirkey Power Plant
SW #33240

Dear Mr. Buchanan:

Per our recent discussion by telephone, I am enclosing a copy of the results obtained from sampling the sludge, pond liner and groundwater associated with the metal cleaning waste pond at our H. W. Pirkey Power Plant. As we have advised the TWC District V office in the past, we experienced considerable difficulty in getting the pond dry enough last winter to complete the sampling as required. Sludge and liner material samples were finally collected at the end of April, 1986. Due to some problems with the samples obtained at that time, it was decided to resample the liner for permeability testing again on August 8, 1986. The results of all of these testing efforts are enclosed for your review.

Groundwater monitoring wells have been installed and in use at the Pirkey Power Plant since its initial operation. Wells #MW-5, MW-6, MW-7, and MW-10 are located around the metal cleaning waste pond (see enclosed drawing), with Well #MW-7 being down gradient, towards the power plant cooling reservoir. Analysis results from these wells for the period of time for which groundwater monitoring samples have been collected are included.

Following your review of the enclosed sampling data, we would like to discuss with you what steps might be appropriate to assure adequate closure of this facility. Please call me at (318)221-2604 when you have completed your review. Your assistance is appreciated.

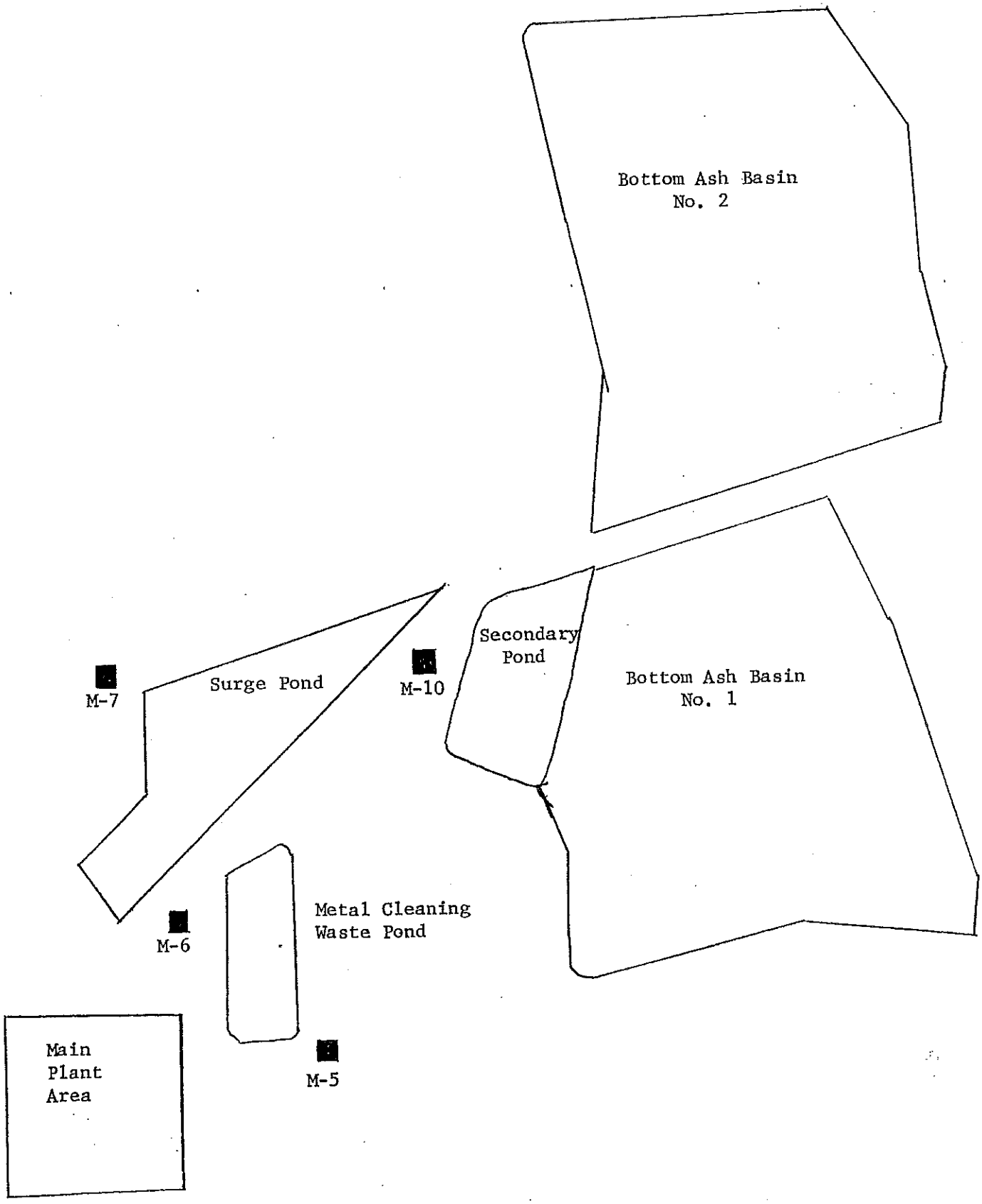
Sincerely,

Jay A. Pruett

Jay A. Pruett
Manager of Environmental Affairs

JAP/db
Enclosure
xc: Texas Water Commission - District V

GROUNDWATER MONITORING WELL LOCATIONS
METAL CLEANING WASTE POND
H. W. PIRKEY POWER PLANT



SLUDGE SAMPLES

METAL CLEANING WASTE POND

H. W. PIRKEY POWER PLANT

DATE COLLECTED - APRIL 30, 1986

Lab No.	Description	pH
-----	B-1	(sample lost)
46720	B-2	3.9
46721	B-3	4.4
46722	B-4	3.9
46723	B-5	6.4
46724	B-6	4.2
46725	B-7	6.8
46726	B-8	6.1
46727	B-9	4.8
46728	B-10	4.6

POND LINER CORES

METAL CLEANING WASTE POND

H. W. PIRKEY POWER PLANT

DATE COLLECTED - APRIL 30, 1986

Lab No.	Description		pH
56791	B-1	Surface	3.6
56792		6 "	3.5
56793		12"	3.5
56794		18"	4.1
56795		24"	4.4
56796	B-2	Surface	3.6
56797		6"	3.6
56798		12"	3.8
56799		18"	4.2
56800		24"	4.4
56801	B-3	Surface	3.8
56802		6"	3.6
56803		12"	4.0
56804		18"	4.5
56805		24"	4.1
56806	B-4	Surface	3.8
56807		6"	3.5
56808		12"	4.3
56809		18"	4.9
56810		24"	4.9
56811	B-5	Surface	3.8
56812		6"	3.6
56813		12"	3.9

POND LINER CORES

METAL CLEANING WASTE POND

H. W. PIRKEY POWER PLANT

DATE COLLECTED - APRIL 30, 1986

Lab No.		Description	pH
56814		18"	4.6
56815	B-5	24"	4.6
56816	B-6	Surface	4.4
56817		6"	3.8
56818		12"	3.8
56819		18"	3.8
56820		24"	4.3
56821	B-7	Surface	4.3
56822		6"	4.2
56823		12"	4.3
56824		18"	4.9
56825		24"	4.9
56826	B-8	Surface	5.0
56827		6"	4.9
56828		12"	4.0
56829		18"	4.3
56830		24"	5.0
56831	B-9	Surface	4.8
56832		6"	4.4
56833		12"	4.6
56834		18"	4.1
56835		24"	4.4
56836	B-10	Surface	4.3

POND LINER CORES

METAL CLEANING WASTE POND

H. W. PIRKEY POWER PLANT

DATE COLLECTED - APRIL 30, 1986

Lab No.	Description		pH
56837		6"	4.3
56838		12"	4.0
56839	B-10	18"	4.0
56840		24"	4.4
56841	North Surge Pond C-1 Surface		5.0
56842		6"	4.9
56843		12"	5.2
56844		18"	5.3
56845		24"	4.8

TWC SPLIT SAMPLES

46729	Liner Near B-7	4.4
46730	Near Site B-2	4.7
46731	Near B-7 Top 3 "Liner Surface"	4.4
46732	Near Outfall Near Site B-7	7.0
46733	Control Liner 6" depth	5.2

Southwestern Electric Power Company
Environmental Laboratory
Pirkey Monitoring Wells

DATE	WELL	pH	E.C.	Acidity*	Alk.	Hard.	TSS	TDS	Residue	Nitrate as N	Sulfate	Chloride	Silica	Al	Ba	CaCO3	Cu	Fe	Pb	Mg	Mn	K	Se	Na	Sr	Zn	COD
May-85	MW-5	6.0	157	0	32	36	103	208	311	0.5	50	9	105	3.5	(0.1	12	(0.05	19.0	(0.05	24	0.09	3	(0.005	16	(0.1	(0.1	12
Nov-85		5.8	158	NS	10	30	616	184	800	0.5	53	7	56	(0.2	(0.1	8	(0.05	3.0	(0.05	22	0.30	2	(0.005	17	(0.1	(0.1	NS
Mar-86		5.8	165	0	11	34	800	168	968	1.3	50	17	28	(0.2	0.1	12	(0.05	3.3	(0.05	22	0.14	4	(0.005	18	(0.1	0.1	NS
May-86		5.8	218	0	19	36	900	230	1130	2.1	56	7	94	1.1	0.6	8	(0.05	55.0	(0.05	28	0.19	4	(0.005	22	(0.1	0.6	
Jul-86		6.2	145	0	8	26	545	250	795	2.1	39	14	65	0.2	0.2	12	(0.05	10.5	(0.05	14	0.11	2	(0.005	21	(0.1	0.3	
May-85	MW-6	6.1	114	0	16	36	159	129	288	0.5	47	3	33	4.6	(0.1	12	(0.05	27.0	(0.05	24	0.48	5	(0.005	5	(0.1	(0.1	16
Nov-85		5.6	184	NS	14	28	432	209	641	0.5	59	10	92	(0.2	(0.1	4	(0.05	8.1	(0.05	24	0.12	2	(0.005	17	(0.1	(0.1	NS
Mar-86		5.7	152	0	9	40	1870	75	1945	1.2	42	5	25	0.2	(0.1	14	(0.05	0.3	(0.05	26	0.22	6	(0.005	8	(0.1	0.2	NS
May-86		5.8	120	0	12	36	1630	183	1813	2.0	36	2	48	2.2	0.6	12	(0.05	82.0	(0.05	24	0.40	5	(0.005	9	(0.1	0.9	
Jul-86		6	112		4	50	870	65	935	2.9	41	6	48	0.2	0.2	32	(0.05	8.2	(0.05	18	0.13	3	(0.005	8	(0.1	0.3	
May-85	MW-7	5.5	132	0	12	32	17	182	199	0.5	44	10	105	2.1	(0.1	12	(0.05	10.6	(0.05	20	0.07	2	(0.005	10	(0.1	(0.1	5
Nov-85		5.6	126	NS	2	36	516	129	645	0.5	29	3	27	(0.2	(0.1	12	(0.05	0.8	(0.05	24	0.17	4	(0.005	8	(0.1	(0.1	NS
Mar-86		3.8	528	53	0	94	300	420	720	7.1	129	224	28	11.3	0.5	24	(0.05	5.9	(0.05	70	0.15	5	(0.005	30	(0.1	0.2	NS
May-86		3.5	624	75	0	132	310	694	1004	13.9	158	197	94	20.6	0.3	44	(0.05	7	(0.05	88	0.16	3	(0.005	70	(0.1	0.8	
Jul-86		3.7	893		0	168	477	777	1254	2.9	215	294	80	27.6	(0.1	54	(0.05	4.5	(0.05	114	0.18	3	0.008	70	(0.1	0.8	
Aug-86		3.6	787	133	0	176	12	758	770	2.3	25	267	91	32.3	(0.1	52	(0.05	6.2	(0.05	120	0.19	3	(0.005	46	0.1	0.6	
May-85	MW-10	5.7	140	0	32	28	53	142	195	0.5	16	30	54	3.7	0.2	14	(0.05	15.0	(0.05	14	0.40	2	(0.005	12	(0.1	(0.1	
Nov-85		4.5	38	NS	4	14	316	67	383	1.2	12	4	24	(0.2	(0.1	2	(0.05	0.3	(0.05	12	0.01	(1	(0.005	6	(0.1	(0.1	
Mar-86		5.3	130	0	8	28	970	110	1080	4.0	21	57	25	(0.2	0.2	12	(0.05	0.5	(0.05	16	0.21	2	(0.005	13	(0.1	0.1	
May-86		5.1	145	0	9	28	584	191	775	1.7	11	27	45	2.2	0.9	12	(0.05	11	(0.05	16	0.2	2	(0.005	17	(0.1	0.4	
Jul-86		5.2	156		3	28	192	110	302	2.5	23	46	40	0.2	0.2	18	(0.05	2.4	(0.05	10	0.09	3	(0.005	13	(0.1	0.1	
Jun-86	M-11	*6.0/6.4	253	0	28	38	17070	207	17277	0.1	56	27	24	(0.2	0.3	14	0.06	16.5	(0.05	24	0.48	3	(0.005	22	(0.1	0.8	
Jul-86		6.1	209		34	50	19475	160	19635	3.1	54	33	30	0.2	0.2	18	(0.05	18.4	(0.05	32	0.37	3	(0.005	22	(0.1	0.5	

08-Sep-86

ALL VALUES REPORTED AS mg/L UNLESS OTHERWISE NOTED